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ComputerWeekly

Thursday, August 12, 1982 Number 821 30p

'82. A great year for PT7.
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FERRANTI Computer Systems

Software consortium expands out of UK

...Nicholas Enticknap

...TISH Defence Software ...6), the consortium of soft... companies formed to bid for ...00 million in NATO defence ...item contracts, has ...engthened its hand by teaming ...with three non-British com... ...ies to form an even bigger ...sortium, to be known as Soft...

...DS itself consists of five com... ...ies. The four founder mem... ...s are CAP, ICL, Leasco and ...L, and they were joined three ...nths after the consortium's ...rmation last December by ...phen Howe Consultants.

...Softlant consists of BDS, ADV ...n of West Germany, Olivetti ...Soldiary Syntax of Italy and ...ll from the United States.

...DS spokesman John Chis... ...n said, "Our plans always in... ...ded the need for international ...tners." Other companies ...hich can bring specific addi... ...al expertise" to Softplant ...y be invited to join.

The motive force which has ...mpted these various part... ...rships is £1,000 million worth ...f NATO defence computer ...ems known as the Air Com...

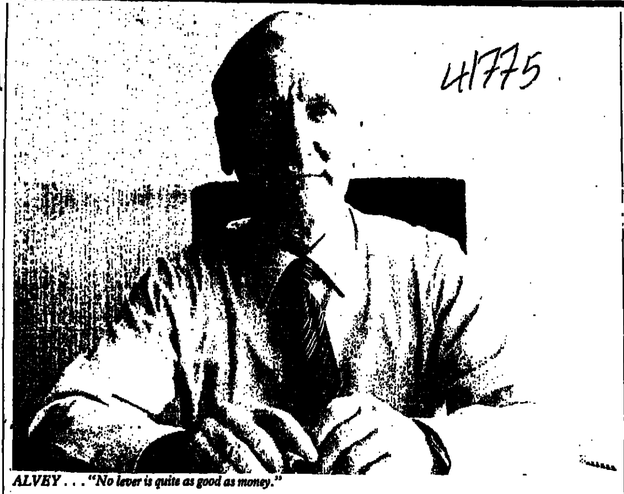
...HISHOLM . . . "Software-led."

...and and Control System ...ACCS). This is a data network ...esigned to keep all the ground ...orces of NATO in touch with ...ne another.

ACCS will be put together over ...he next 10 to 15 years. A team ...as set up to define the system ...equirements by NATO in Brus... ...els in January.

Softlant faces competition from two American-led consor... ...ia. One is headed by Hughes Air... ...craft, traditionally a large-scale ...supplier of defence systems, and ...includes companies such as Ples... ...ey, Ferranti and Siemens. The ...other is led by Boeing and in... ...cludes companies such as Sintra, ...SEL and one of the BDS compo... ...nent companies' greatest rivals, ...Logica.

The software content of ACCS ...will be considerable, and is esti... ...mated to account for around one ...third of the total budget, that is ...some £300 to £400 million.



ALVEY . . . "No lever is quite as good as money."

Alvey dodges issues of fifth generation

by Kevin Cahill

THE government's special study group on the fifth generation of computers looks set to dodge the key issues raised by the Japanese by aiming for short timescales and limited software goals.

A draft copy of the Alvey report, commissioned in haste in response to Japan's *fifth generation* project, is now circulating in Whitehall. The full Alvey proposals are due early in the autumn.

The draft report recommends that the UK co-ordinate all its information technology research through a centralised directorate funded to the tune of £150 to £200 million by the government and a similar sum from industry. Both proposals will be submitted to a government which has shown a marked reluctance to make money available for industrial projects, however deserving.

Information Technology Minister Kenneth Baker will go only as far as saying that his Department's commitment has risen from £30 to £130 million, and there are indications that the level of funding will increase.

John Alvey, the head of technology at British Telecom, was given the task in April of producing a report on the future UK information technology needs.

Although the report is widely seen as reaction to the ambitious Japanese goal of having a 10,000 million instruction per second self-programming computer in production by 1992, Alvey was given just five months to come up with a strategy for the UK, in the face of a Japanese effort which is already two years under way and which has a further two years of research input behind it.

Alvey, while unwilling to comment directly on the draft, says that the report looks at a much wider spectrum of needs than the Japanese project.

It also looks at a much shorter timescale, just five years compared to the three-phase ten-year plan from Japan.

Alvey said he did not think the UK could generate the necessary collaborative effort without government leverage, and that would not be effective without money.

"No lever is quite as good as money," according to Alvey, who is recommending a figure for the next five years equal to the $450 million the Japanese intend to invest over the whole ten years of their fifth generation project.

Conceding that it would be hard to catch up with the Japanese, Alvey said he thought the UK should collaborate with the Japanese eventually.

Professor Roger Needham, head of the computer department at Cambridge University and a member of the Alvey committee, made the same point and added that the only way to go into collaboration with the Japanese was from a position of strength.

According to Alvey, one way to achieve this is to go for selectivity in UK projects.

The only specific topic on which Alvey has so far elaborated is software, where the report appears headed for a low-key recommendation that the UK improve existing standards and make more readily available existing software tools.

This appears as the key directional weakness in relation to the Japanese effort, which identifies all current software languages as stumbling blocks to progress in computing.

Chinese sign £1m contract with Arbat

by Maggie McLeming

UK systems house Arbat has ...cked the Chinese market with a £1 million plus order for four systems with orders for over 100 more in the pipeline.

Negotiated through the Beijing branch of the China Electronic Import and Export Corporation, the order is for four Digital Equipment PDP-11/44 minicomputers to be supplied to the Civil Aviation Administration of China and to the Beijing Railway Administration.

Details of the second set of orders have not yet been released, but Arbat will be looking for other British and American companies to supply systems, terminals, peripherals and associated products to help meet it.

The dual PDP-11/44 is to be used internally by the Beijing Railway Administration for such tasks as scheduling of trains, cargo movements, passenger traffic, forecasting and budgeting, as well as administrative work including stock control, payroll and accounting. Similar activities will be handled on the Civil Aviation Authority's system, which will control 500 aircraft and take responsibility for 100 airfields.

This is Arbat's first sale to the People's Republic of China and it comes after 13 months of intensive marketing effort.

"In June 1981, our Far East director, Doug Schilling in Hong Kong, was approached with the PRC business. Due to very complex export licensing requirements, we identified the need for extremely close liaison not only with the customer, but also with the relevant UK and US Cocom government authorities," said Ahmet Yilmaz, the Arbat China project director.

NEWS BRIEF

Geest £2½m order for Tandem

SOFTWARE house Geest Computer Services has signed a £2.5 million deal for hardware to make it the first European commercial OEM for Tandem.

Geest will take machines from Tandem over the next two years to sell with its own ADS software for sale to motor dealers, electrical wholesalers and builders merchants.

NatSemi jobs go

CHIP manufacturer National Semiconductor is to axe 1,000 jobs in the US, and further cuts may affect workers at its Greenock, Scotland, plant. The reduction represents three per cent of the workforce, the same proportion as laid off by Texas Instruments in April. National Semiconductor reported a loss of $10.7 million in 1981-82.

Compeda exports

STEVENAGE-based Compeda has won a $2.6 million deal to supply its plant design management system to McDermott *Marine Construction of New* Orleans. The system will be used for the design of offshore drilling platforms, refineries and petrochemical plants.

Bureau acquired

THE COM bureau empire of Britain's Eurocom Data has been expanded with the acquisition by its West German subsidiary of the Frankfurt bureau, Depora, which has 45 employees. Based at Rickmansworth, Herts, Eurocom, is a wholly owned subsidiary of the National Westminster Bank.

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IT East Anglian chief is sacked

by Nicholas Enticknap

THE image of the government's IT82 awareness campaign has been tarnished by the removal of East Anglia regional sub-committee chairman Brian Ashworth from his post for alleged maladministration.

To make matters worse, an IT82 event by Ashworth's employer, the Chelmer Institute of Higher Education, is currently the subject of a police investigation.

Asked to comment, an Institute spokeswoman read a prepared statement saying: "The County Council has referred to the police possible irregularities in connection with the IT82 symposium held in Chancellor Hall in April this year."

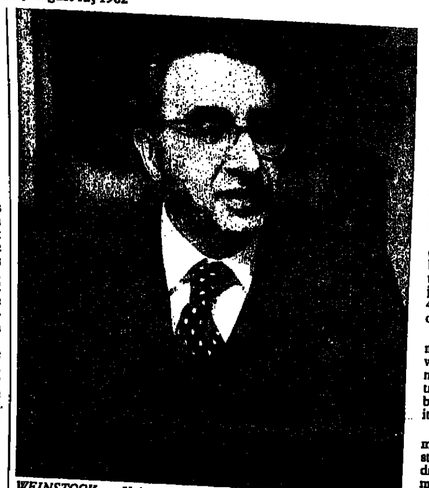
She refused to confirm or deny Ashworth's involvement in this event or to make any other comment, saying, "It's out of our hands now."

The event in question took place on April 14 and was apparently very successful. The attendance was estimated at between 200 and 300, and the speakers included former Post Office chief Sir William Barlow, Marconi chairman Sir Robert Telford and IT82 campaign committee chairman Alan Benjamin.

Ashworth's IT82 activities are now being investigated by a solicitor on behalf of the IT82 committee. Benjamin was keen to play down the significance of this, saying that the committee wanted to be sure that any commitments entered into on its behalf were honoured. "We want to make sure we don't let anybody down."

A solicitor was used because "we don't have any investigative apparatus of our own."

Ashworth's role has now been given to Bob Jenkinson, chairman of the IT82 London and South-east region.



WEINSTOCK . . . Union resistance stalled joint venture talks.

AEG takes shelter from £1bn creditors

by Kevan Pearson

FINANCIALLY ailing AEG-Telefunken, West Germany's second largest electronics group, last Monday threw in the sponge.

The company applied to the courts for a settlement of over £1 billion of debts that could leave up to 40,000 of its workforce without jobs and its creditors with only 40% of the money that they are owed.

The move came after a two-month agony of intensive talks with the West German government and with most of the country's major banks, which were both its biggest shareholders and its largest creditors.

Britain's GEC early last month made proposals to take a minority stake in part of AEG, but later dropped what has become Germany's biggest financial hot potato.

AEG applied to the courts when its last gasp talks with a 25 strong consortium of banks, some of which are themselves in trouble because of AEG's plight, failed to implement a rescue plan put forward in early July by the government.

AEG's plans for industrial survival took a double blow last week when it emerged that GEC and its chief executive, Lord Weinstock, were rapidly losing interest in a joint venture with AEG. And the West German government has also indicated that a proposed deal with Grundig in the consumer electronics industry would come under the scrutiny of the West German monopolies commission.

Lord Weinstock is reported to have lost interest in taking a 40% stake in AEG's capital goods and technical division after continued resistance from the AEG workforce.

The unions, which represent the company's 4,500 domestic workforce fear that a deal with GEC would result in further job cutbacks.

The workforce has already shrunk by 45% over the last five years. Repeated flying visits by Lord Weinstock have failed to assuage their fears.

Meanwhile, the president of Germany's monopolies commission, Wolfgang Karrte, has said that the proposed deal between Grundig and AEG's consumer electronics divisions would contravene West Germany's monopolies legislation. He added that the rules would not be bent to allow Grundig, which is 24% owned by the Dutch electronics combine Philips, to take a majority stake in AEG's two major consumer electronics subsidiaries.

The move would have eased AEG's problems considerably, as the consumer side of its business has been the major headache.

MP fights a wall of silence on BTG loss

by Kevin Cahill

THE British Technology Group looks set for a rough autumn as Tory MP Michael Grylls prepares to roast the Department of Industry with questions relating to the BTG's losses.

Describing the Department's reply to his question on the start-up costs at United Peripherals Limited as, "most unsatisfactory", Grylls said he would be pursuing the matter when Parliament resumed.

Grylls asked Secretary of State John Butcher to say what losses had been incurred by the National Enterprise Board's investments in Data Recording Instruments and United Peripherals Ltd.

The Secretary of State, in a written reply, said the question was a matter for the board (of the NEB/BTG).

A BTG spokesman says that commercial confidentiality prevents any further disclosure of details relating to United Peripherals Ltd, which is now profitable, and adds that the company is under the commercial management of Control Data.

The published reply added: "Details of the trading position of DRI, and the provisions which the NEB has made in respect of it, are contained in the recently published Annual Report and Accounts for 1981, a copy of which is in the library (of the House of Commons)."

What the Secretary of State did not say was that the losses at United Peripherals have never been separately accounted for or explained except in footnotes to the DRI accounts, which in turn consist of just one line and some footnotes in the NEB/BTG accounts.

So far, by combining two years' loss figures from DRI, which come to just over £20 million, and by including a £12 million provision from a separate part of the NEB/BTG accounts, a final figure of £32 million emerges as the start-up cost of disc manufacturer UPL.

In a confused way both the BTG and sources in the Department of Industry confirm that the £32 million figure is correct, but details are scanty.

The factory at Winsford where United Peripherals is based was purchased from ICL at an undisclosed price, thought to be about £6 million.

The NEB/BTG accounts say that the £12 million relates to stock write-offs incurred as a result of the UPL start-up, but does not say what those stocks were.

Control Data Corp of the US, which has a 24% stake in UPL and which manages the plant for DRI, will not comment on the losses, but sources close to the company say that losses of the order emerging from the BTG/NEB accounts do not square with the actual operations at Winsford.

What appears to have angered Grylls is that losses of public money of this scale can occur without any detailed accounting being made.

No advance plans for UPL were made public, so no public control was exercised.

Grylls says that events at the NEB over the past three years would indicate a complete loss of control by the Department of Industry officials who are supposed to monitor the investment activities of the NEB.

Brittany bid to conquer European disc market

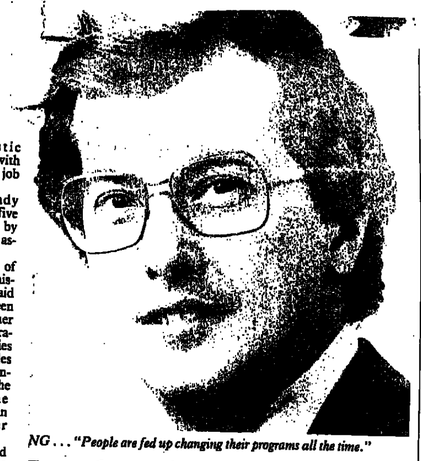
by Jack Gee

FRANCE's Data Media company has opened a factory at Trebeurden, Brittany with an annual capacity of 50,000 magnetic discs and the objective of meeting the government's target of conquering this market.

Nashua, BASF, Control Data, Norman Magnetic and Memorex control 80 per cent of French sales. The United States sold 800,000 hard discs in Europe in 1980 and forecasts for 1984 exceed 1.2 million.

Until now Rhone-Poulenc Systems was the only French producer with 7.6 per cent of the European market. Now Marc Sainton, who created Data Media in 1976, has launched an ambitious new project.

Sainton has invested 500,000 French francs (£40,000) of his own funds with 250,000 francs (£20,000) regional government finance, he borrowed 2.75 million francs and ploughed back 4 million francs from cash flow to launch his disc venture.



NG . . . "People are fed up changing their programs all the time."

Top level US approval for Micro Focus' Cobol compiler

Robert Parry

SOFTWARE firm Micro Fo- has won top level certification its Level II Cobol compiler. US government General Se- Administration has certified product at "high level" – the best of four grades – with no irs. Level II, a microcomputer duct, joins compilers from only n other companies at this level certification. All seven others major mainframe suppliers, IBM, Honeywell and Sperry ivac.

"We really went for GSA list- says Micro Focus director art Lang. "The micro scene lots of changes in hardware, people are fed up changing r programs all the time."

o far the high level certification or the Intel 8080 microproces- implementation of Level II Co-, but others will follow soon.

8086 version has reached the nd highest grade, and it will be aightforward operation" to ng it up to high level says Lang.

Versions to run under Unix will also be pushed for the top grade certification soon.

With the certification of Level II Cobol, the link between microcomputer and mainframe application software has been established, says marketing manager Peter Hewitt. Much of the vast bulk of Cobol application software worldwide conforms to the Ansi 74 standard, as does Level II, and Micro Focus' aim has been to develop portable Cobol compilers to allow transfer of such software to a range of microcomputers.

The GSA high level certification means that US government and federal agencies can now buy micros running level II Cobol. The GSA authorises such purchases, rather as the CCTA does in this country, and demands that the machines run a certified Cobol compiler.

Already US micro manufacturer Cromemco has announced it will offer the Micro Focus Level II Cobol with its 16-bit micros.

DRE top marketing men quit 'black hole of bureaucracy'

by Andrew Thomas

THE British Technology Group has lost two of the top men from one of its ailing companies in the space of a month. Pierre Ghouti, marketing director, and Joe Hemani, international sales manager of Data Recording Equipment have left for California-based Dataproducts.

Hemani takes over the role of European product manager, and Ghouti is to head the company's French operation. Both men report to another ex-DRE man, vice-president, European marketing, James Janfrey.

Hemani cites the bureaucratic organisation at DRE, a subsidiary of Data Recording Instruments, as one of the reasons for leaving.

"At DRE, Pierre and I achieved 1,000-unit-a-month sales of a new matrix printer in 20 months. We put in a hell of a lot of effort, but all the results were just swallowed up in the black hole of bureaucracy at the heart of DRE. We got no encouragement or motivation from them, and all that effort seemed to go for nothing," said Hemani.

"We both like the sound financial backing and stability of Dataproducts, not to mention the lack of bureaucracy," he added.

"We had no idea what the future held for DRE. The BTG spells failure."

John Gripton, European marketing director at Dataproducts, says that the new faces will provide a major boost to the company's plans to move into matrix and daisywheel printers in a big way.

"We have a cosy niche in the line printer market, with over 25% of the non-tied European market, but it's pretty static," he says.

It looks as if more people could be moving to Dataproducts shortly.

Gripton said: "Although we don't have anyone lined up, there will be more coming. We need to get line printers beefed up in order to maintain us on the top of the pile.

HEMANI . . . "All that effort seemed to go for nothing."

Doubt over future of micros in education

by our Parliamentary Correspondent

REPORTING to MPs on progress in developing the use of microtechnology in education, William Shelton, Under-Secretary for Education, said the government had not yet decided whether to extend the current programme beyond 1983-84.

He said the microelectronics education programme, now in its third year, had already established a regional network of centres at which primary and secondary school teachers could seek advice and obtain information about the use of microcomputers as an aid to teaching and learning and about the use of microelectronics in the curriculum.

Over 3,000 primary and secondary school teachers had already taken part in pilot courses of in-service training with financial help from the programme.

This year a further 10,000 would be attending shorter courses provided by local education authorities in connection with the DoI scheme of financial help towards the cost of purchasing microcomputers for primary and secondary schools.

The microelectronics education programme was also investing in the developing of software and curriculum materials for use in a number of subjects.

US professional body sets up UK chapter

Nicholas Enticknap

ATA processing professionals l have a third professional body in September, when the erican Data Processing Man- ment Association (DPMA) is ning to start a local chapter in ndon. The initiative has been eted with a marked lack of en- usiasm by the two existing bo- s, the IDPM and the BCS.

The DPMA is in some ways petitive with both bodies. In it it was formed for DP man- rs, it is analagous with the PM (which was formed in 1978 m a similar body which was also ed the DPMA), and the IDP, that it promotes a Code of cs and Standards of Conduct. DPMA competes with the BCS ich pioneered a Code of nduct and a Code of Good actice as far back as 1972.

e IDPM Secretary-General, Cluff, said he was disap- nted to hear of the DPMA's ve, saying, "We shall be eting to tell them in the ngest terms that they are in- ging on our patch. Many people know us as the DPMA, so re is bound to be confusion."

He added that if the DPMA sted in its plans, the IDPM ld have to cancel its arrange- with State of the Art inars whereby the two bodies tly sponsor conferences and inars. One of these confer- es, on the Ada programming guage, starts on September 20 the day the inaugural chapter meeting is to be held.

Cluff pointed out that the DPMA had tried to set up a branch in the UK before, but had been unsuccessful.

Cluff's counterpart in the BCS, Derek Harding, said, "If they think a gap exists, they are misguided. For what is necessary for the information processing professional – if we're going to use that term – anything we don't provide the IDPM does."

Data Type in bid for Dutch firm

WELSH-BASED Data Type is on the international acquisition trail and aims to buy a Dutch electronic firm.

This follows hot on the heels of its purchase from the receiver of Swiss-based Teledynamics, a subsidiary of the ill-fated Data Dynamics of the UK, which is now trading under its own name, but with new owners.

Data Type first acquired the German subsidiary of Data Dynamics and, according to chairman Gerry Tuffs, "The Swiss firm was the first one we targeted for purchase, but the legal niceties involved in buying the company made for protracted negotiations."

The UK company refused to disclose the purchase price but drew on another £150,000 cash from its backer, Citicorp.

FCC rejects Bell packet service

by Howard Karten

THE US Federal Communications Commission, which regulates telecommunications, last week rejected an AT&T proposal for its Bell Packet Switched Service (BPSS), which would have been a regulated offering.

BPSS, a stripped down, node-to-node transmission service, is the backbone of the Net/One packet switched service that will be offered by the unregulated American Bell subsidiary of AT&T.

AT&T and American Bell have both been left perplexed and confused by the Commission's actions.

The official reason the Commission gave in rejecting the AT&T filing was that the proposal involved constructing new transmission facilities, which by law requires FCC authorisation. AT&T officials say that law has normally been applied to physical transmission lines, and not switching machines.

Unofficially, however, several FCC commissioners are understood to have felt that BPSS was designed solely to serve American Bell. If true, that would violate the guidelines established as a result of the FCC's computer inquiry, which recommended allowing AT&T to enter unregulated, computer-related businesses.

AT&T officials point out that BPSS would have been available as a regulated offering to other communications resellers, such as those offering electronic mail, message switching, inquiry response networks, and related services. One reason AT&T and officials are said to be so perplexed is that they are unable to account in any way for the FCC decision.

As of the latter part of last week, AT&T and American Bell officials had not seen the full text of the FCC document.

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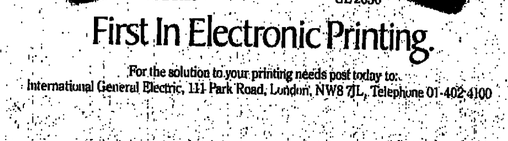

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Officials must ask 'Monsieur DP' before new files are begun

by Jack Gee

FRENCH Prime Minister Pierre Mauroy announced new measures last week to ensure closer co-operation between government ministries and the National Commission for Information Technology and Individual Liberties.

A senior official in each ministry will be appointed to a liaison role with the Commission in order to improve application of the 1978 law which imposes severe restrictions on the creation of computerised and manual files of citizens.

These officials will work under the supervision of the government's commissioner at the watchdog body, Philippe Lemoine, whose powers are extended.

Already dubbed "Monsieur Data Processing", each official will consult the Commission for Information Technology and Individual Liberties before creating new files. The law requires that the Commission should be informed only after files are established, to ensure that they conform with its mission as the citizen's guardian.

Premier Mauroy says: "The new provisions are an important step forward in protecting individual liberties in a society which is depending increasingly on data processing."

The ministerial officials' main task will be to ensure that new files do not run the risk of being rejected by the Commission for failing to conform with the law.

The Commission has already banned a number of officially sponsored files, including "Gamin" ("Urchin") which listed children with health risks and was ruled to be discriminatory.

Senator Jacques Thyraud, president of the Data Processing Commission, says : "Our task is to make everybody in France aware that they enjoy the law's protection against the Big Brother danger which lurks in a country where 200,000 names are listed in databanks."

The average citizen appears 200 times and, if he or she has children, 500 times.

Unlike computerised files, manual files do not have to be registered with the Commission. But neither type may contain references to race, political opinions, religion, trade union membership or court records.

Premier Mauroy's new measures confirm that the government attaches as much importance to the work of the data processing privacy commission as the administration of President Valery Giscard D'Estaing which founded it five years ago.

To guarantee its independence from government pressure, the Commission's 17 members are chosen from parliamentarians, magistrates and specialists from a wide range of bodies.

MAUROY . . . "An important step forward in protecting individual liberties".

Puzzled IBM users play safe in the second-hand market

by Kevan Pearson

CONFUSED big IBM users are hedging their bets on the company's latest large machines and are going for second-hand mainframes.

For the complex delivery schedule that IBM has deliberately introduced for its top-of-the-range 3083, announced last April, has left users uncertain about the machine and the next generation operating system, MVS/XA.

And leasing companies are reporting a boom in demand for smaller second user machines as the users attempt to cope with their own demand for increased computing power without committing themselves to the new machines.

John Fuller, of leasing company PCML said: "The second user market is booming at the moment – mainly due to existing big machine users who have run out of mips (million instructions per second, a measure of computing speed and power) and who want to extend the lives of existing systems".

And Peter Hines, director of London-based leasing firm Grosvenor Computers, said: "Demand is high and there are some machines around, but you can't always find the right one."

The price-performance curve of IBM's new ranges, including the two models of the 3081 series, does not follow a straight line, but has several kinks in it, which further complicates any upgrade decisions by cost-conscious users.

The problem is that the 3033 comes in several shapes and sizes from the lowly S model to the 3033 U16, with 16 Mbytes of main memory and 16 channels. Machine upgrades are neither straightforward nor cheap, if a user wants to go from a model S or N to one of the U versions.

Prices for 3033s, for delivery late this year, range from £350,000 for a 3033 N to £450,000 for a 3033 U16, and this is what makes them so attractive says Fuller, when compared with a 3083 or a 3081 D (10 mips).

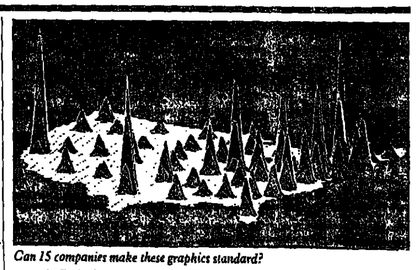
"We are getting a lot of enquiries about two-year leases on 3033s," says Fuller. "There are a lot of uncertainties in the large CPU market at the moment and the easiest decision is to make no decision regarding a new processor."

By going for a second user 3033 over two years, instead of the equivalent performance 3038, a model E with 16 Mbytes of main memory, users could save up to £100,000 over two years, since there is no need to service a loan on a machine with facilities which can't be fully used yet, ie the ability to run MVS/XA. A new 3083 will cost around £900,000, for a working system with controller and cooling unit, compared with the £450,000 for a top model 3033.

Philip Wilson, computer centre manager with British Home Stores, explains the steps a user should go through in deciding how to upgrade in the present market conditions. According to Wilson the problem at the moment is to look at the market to see how best to satisfy the immediate need for more power.

And under present market condition that means second user 3033, says Wilson.

"Taking a 3083 will cost over £800,000 and you have to wait a year, but you can have the power you need in a 3033 U for half the price, and the depreciation over two years will not be excessive for a big business."



Can 15 companies make these graphics standard?

Fifteen firms adopt graphics standards

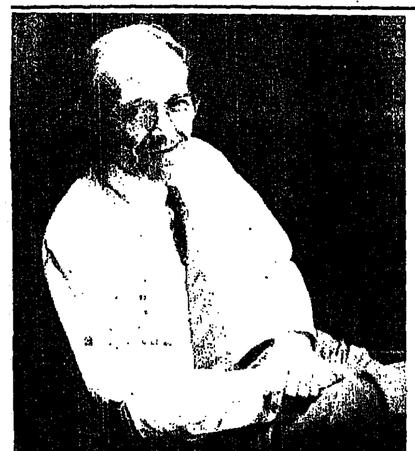
by Howard Karten

ICL, Norpak, Digital Equipment Corp and 12 other firms announced last week that they had adopted two standards for inclusion in their graphics products.

The standards are the North American Presentation Level Protocol (NAPLPS), used for Teildon, and Virtual Device Interface (VDI). Both embrace some of the lower levels of the International Standards Organisation Open Systems Interconnection (OSI) standards.

NAPLPS is currently being considered by the American National Standards Institute X3L3 committee on character sets and coding, and VDI is under development by the Ansi group on computer graphics programming languages.

The 15 firms involved are Digital Research, Graphics Software Systems Inc, Hazeltine Corp, ICL, Iasco Graphics, Mannesmann Tally Corp, Microsoft, ABL Microtel, Norpak, Westinghouse Electric Corp, Xerox Corp, Precision Visuals, Dec, Intel, and Tektronix.



TOLLEY . . . "This is not a poor man's Open University".

£1m plan to re-train 50,000 adults a year for high-tech

by Philip Hunter

THE UK's shortage of high technology people is to be countered by a million pound, 50,000 people a year scheme from the government. The Manpower Services Commission last week launched its "Open Tech" plan for adult retraining.

Most likely candidates for the "Open Tech" will be people over 28 who want to change course in their careers, or find work again after a lay-off.

Employers will be asked to encourage and pay for their workers to attend courses. MSC chairman David Young also hopes that employers who now provide relevant internal courses in subjects like process control or robotics will open them to other companies through the "Open Tech" scheme.

George Tolley, leader of the "Open Tech" task group, points out that British Leyland has already submitted plans for courses in microelectronics, process control and robotics. Talks with other companies and organisations are now taking place, he says.

Tolley dismisses ready comparisons between "Open Tech" and the existing Open University scheme: "This is not a poor man's Open University."

The only similarity between the two schemes is that both make use of existing teaching facilities. Unlike Open University, "Open Tech" will make no awards, build no new premises and will not actively enrol and recruit students.

The main purpose of "Open Tech" will be to act as an educational broker to put people in touch with the appropriate course. But in addition there will be about eight major projects to create new courses in high technology subjects such as microelectronics and computer programming. These will take place at existing organisations such as technical colleges and universities.

Tolley expects that 50,000 students will be passing through the scheme each year by 1985, a similar figure to the number of unemployed people now taking Tops courses. But "Open Tech" will receive far less financial support.

The Tops programme costs £250 million a year now, while £1 million has been designated for the first year of "Open Tech", rising to £10 million after three years.

But Tops courses, says Tolley, are for unemployed people and provide £60 a week of support for students as well as paying all the fees.

Employers, or some existing grant body such as local authorities, will be expected to support students for "Open Tech."

In exceptional cases, however, small sums might be given to students for travelling if they cannot get the money elsewhere.

SALES BRIEF

Prime 750 for Leeds tax office

THE Inland Revenue has ordered a two-megabyte Prime 750 for its Leeds office, the tax district responsible for assessing Lloyd's underwriters' income and capital gains tax liabilities. The software to handle details of the 17,000 underwriters and 5,000 syndicates is being developed on a Prime 400 recently installed in London based on Prime's DBMS database management system.

The two machines will be linked using Primenet software and will be accessed by 23 terminals which were included in the order.

ICL wins

RENTOKIL has placed a £500,000 order with ICL for branch systems after evaluating both ICL and IBM equipment and support. The order is for 38 DRS20 multi-microprocessor based systems, including Model 50s and Model 10s, for word processing, invoicing and storing records of contracts. Invoice data will be forwarded on floppy discs to the ICL 2946 mainframe at head office.

Swiss repeat

SYSTEMS house SPL International has won a £240,000 repeat order from the Swiss Bank Corp for an ADS-365 message switch to be used for development, testing and training at its head office in Basel. The system will be based on a Tandem NonStop mini with SPL line controllers built around the Motorola 6802 eight-bit microprocessor.

£1m orders

TEWKESBURY-based Westward Micro Systems has taken over £1 million worth of orders for its four models of graphics terminal in the last five months, 35% of which are from overseas. The company now expects to turn over £3 million in the financial year it has just started.

24,000 messages

CABLE & WIRELESS UK Services has supplied an MX300 128-line message switch to the RAF for use in its air movement monitoring network. The system is currently handling about 24,000 messages a day, which is less than half its full capacity.

Oxford courses

OXFORD College of Further Education has placed a £53,000 order for an eight-terminal word processing system and two standalone systems from Datatext of Camberley to supplement existing course material and for use in running short courses for local organisations. Datatext won the order after linking its clustered system to the college's Prime 250 for a demonstration.

Bank order

MERCHANT bank Morgan Grenfell is to replace its two ICL 2960s with two 2966s, which will provide two-and-a-half times the processing power while enabling the bank to retain all its existing peripherals. The bank's software, including a valuable financial modelling tool for evaluating mergers and capital projects, is already running under VME/B in preparation for the move.

SEL ousts HP

GOULD SEL has edged out rivals Hewlett-Packard to win an order from the National Maritime Institute for a multi-user packet switching system. The company will be supplying two 32/77 computer systems on two sites, linked by a single-user system, used for general purpose scientific computing by the Institute.

SOFTWARE FILE

by Maggie McLening

Unix set to penetrate commercial market

PORTABLE operating system Unix is at last on the verge of penetrating the commercial market.

Western Electric's multi-tasking system has been tipped to become the standard portable system of the Eighties, but has been criticised for its lack of user friendliness and shortage of applications software.

But two British software companies are out to cure both these ills. Newly-formed Precision Software, of Worcester Park, is concentrating on producing applications packages to run under Microsoft's Xenix version of Unix; and CDS Computers in the Barbican is offering development tools for System III, the updated version of Unix vii.

"A lot of people are talking about running programs under Unix, but they tend to be single-user systems that have been transferred across without taking advantage of the multi-processing capabilities," said John Tranmer, managing director of Precision Software.

"We have put our emphasis on application software and have found that, although there are different versions of Unix, providing you approach development sensibly and don't use strange utilities, software really is portable."

His company is currently offering XED word processing, which he says has been ported to six or seven different machines without losing one of the 30,000 or so lines of coding, and the TEXED full screen editor. Both of these products were developed by Los Angeles-based Computer Methods, but Precision is also working on its own range of products, to be launched in September.

"Environment Manager will be our first product, which is designed to take the user away from Unix, and has protected access facilities based on user and function identification," explained Tranmer. "We have already had several enquiries for it, and will probably be bundling it with our general ledger package to start with."

Precision is using a screen and report generator to produce its applications software called Data Entry Definition language, and this may become commercially available after the other software has been launched.

CDS Computer, which is about to change its name to Unix-inspired Root Computers, is a DEC OEM and the only company in the UK to have a System III licence. It is also offering word processing with the Wordpower package, and the Datapower database system, in addition to development tools.

"We offer and support a full screen editor, spooler package, change of priorities and use of file quota, and a complete user overlay system to deal with Fortran programs and others that may be too large for the smaller PDP-11s of the range," said John Collins, systems director.

Despite ACT's announcement of an Ansi Cobol 74 compiler written in Pascal for running under Unix, and the fact that Precison is developing systems using Micro Focus' CIS Cobol, CDS does not intend to adopt the language.

"We are deliberately not getting Cobol because we prefer to develop our software in C," said Mike Kinton, commercial director of CDS. "CIS Cobol is really locked into the Microsoft/Xenix circuit and hasn't spread, and the version being used on the Motorola 68000 processor in California is the Ryan McFarland version."

Like Precision, CDS also intends to launch a line of products for the Unix market this year starting with a full screen editor.

KINTON . . . Deliberately not getting Cobol for development under Unix

Web package to be used for planning water distribution in Nairobi until 2,000 AD.

UK master plan for Nairobi water

NAIROBI City Council is to use a package developed by Thorncroft Manor service bureau in Leatherhead to produce a master plan of its water supply up to the year 2,000.

The package, Web, is a sophisticated water distribution network design and analysis system that allows engineers to examine the efficiency of a plan online.

It can handle up to 100 nodes with 150 pipes, reservoirs, sustaining valves, throttles and up to 10 different types of head pump, and has already been used extensively by local water authorities in the UK, and engineers in France and Costa Rica.

Written in Fortran, Web is to be run on an ICL mainframe in Nairobi, but Thorncroft has also recently produced a version for the Superbrain micro, running under the CP/M operating system. It is written in Microsoft Fortran, but a price has yet to be decided.

The mainframe version costs £3,000, plus an additional £500 for implementation.

SOFTWARE BRIEF

Range for stockbrokers

MICROCOMPUTER-based software for stockbrokers has been announced by City specialists Eurotec Consultants. Stockbroker is an integrated range of modules covering general portfolio management, stockholding and commission analysis, and capital gains tax positions. A complete system starts at £11,000, to include the first of three software options.

Debugger launch

A HIGH-LEVEL debugger for programs written in PL/M, Pascal and Fortran is now available from Rapid Recall for the Intellec Series III microcomputer development system. Pscope upgrades tracing of program execution by allowing users to follow procedure entry or exit points, and to define high-level code patches which can be stored and compiled for incorporation into source code at a later stage.

APL dates

THIS year's APL users' meeting organised by I. P. Sharp Associates is to be held in Toronto on October 4, 5 and 6.

Mainframe graphics link to micro

GROWTH of the computer graphics market, has prompted a US company to launch a package linking a micro modelling system with a mainframe graphics software package.

Virginia-based Executive Micro Graphics Systems has produced Visibility, a program to link best-selling modelling system Visicalc with Tell-a-Graf, the user-friendly data representation graphics software from ISSCO. Tell-a-Graf produces full colour two and three dimensional graphs, pie and bar charts from input data files, using English-language type commands, on a mainframe machine.

Processing is performed on the micro and the finished result sent down the line to be processed by Tell-a-Graf on the mainframe. This relieves the larger machine from time and CPU consuming modelling exercises and provides an easy to use system for the user by front-ending the mainframe.

This type of product would be well-suited to a bureau environment, and may prove popular with bureaux that are leasing micros to customers.

Priced at $99 in the US, Visibility has not yet found suitable dealers in the UK, although Executive Micro Graphics Systems is actively looking for them.

HALE . . . Given a second chance.

Peachtree 'second bite' at Xerox catalogue

XEROX is to sell Peachtree software under its own label for the Mark II re-vamped version of its 820 microcomputer. It is the second bite of the cherry for Peachtree, which missed the original opportunity to get into Xerox' software catalogue.

Under the agreement, Xerox guarantees to sell some £250,000 worth of Peachtree software within the first year and to provide first-line support for customers with MSA-owned Peachtree backing them up.

"Initially, we were too late in getting up in the UK to get into the catalogue, but we were given a second chance because of difficulties Xerox found with the original suppliers," explained John Hale, managing director of Peachtree. "This shows a substantial commitment to us on Xerox' part."

The arrangement with Xerox will be of the same type that Peachtree has with IBM in the US, and covers the full range of products, including office productivity software.

In September it is due to launch software for the Apple and Osborne I machines, following up with CIS Cobol programs for the Apple III.

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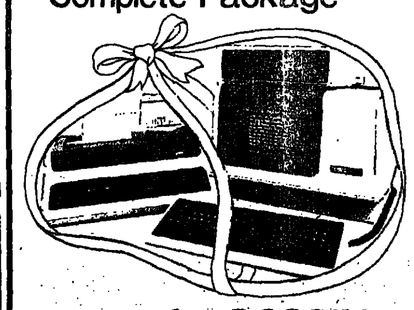

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by Kevin Cahill

US giant puts £4¾m into UK venture fund

VENTURE capital, the lifeblood of the US computer industry for most of its existence, has been given a boost in the UK by the giant American company Monsanto.

Lately, the UK has started to develop a vibrant venture capital scene, and computer companies have been some of the earliest beneficiaries.

This week the Advent Eurofund, with over £10 million in the pot, has been set up by Monsanto and six academic institutions.

It has a management team whose track record suggests that much of the money will come to the computer industry.

Monsanto is a chemical company, and the world's largest supplier of silicon to the electronics industry. It has an annual R&D budget of about $240 million, and according to its business development director, Richard Onians, there is an urgent need to renew the company's products and markets.

Despite the enormous research spend – over three times ICL's annual R&D budget – Onians said that big companies like Monsanto had structures which sometimes made decision-making ponderous.

For this and other reasons Monsanto has placed £4.75 million with Advent management, now the largest venture capital organisation in the UK.

Advent is run by David Cooksey, who was a keynote speaker at last year's first-time financing conference run by Computer Weekly and merchant bank Singer and Friedlander.

Cooksey made it plain that much of the investment funds in his organisation would go to the computer industry in the form of equity investments in new and entrepreneur-run companies.

The investment placed in Advent's Eurofund, which includes some money from insurance and other bodies comes to £10 million. That brings the total venture funds under Advent management to £20 million.

Although Advent will act as manager of the fund, it has assembled an impressive board for the Monsanto-led £10 million.

The chairman is Sir Kenneth Cork, the UK's most famous liquidator – who is also director and chairman of many flourishing companies.

Another director is Michael Stoddard, better known in financial than computer circles, but whose £10 million Electra Risk Capital fund has over 20 investments in computer companies.

COOKSEY .... Funds for computer industry.

DoI in talks on Triemco terminal

THERE is nothing like a new low cost computer device to cause controversy, and International Communications Technology's Triemco 2000 has achieved just that.

ICT announced the device, a multifunction voice communications terminal, a few weeks ago and Cecil Kernot, company president, said all production through 1984 – four million units in all – was sold out.

He also suggested that national telephone authorities would be the logical distribution channels for the new machines.

What he did not say – and what has caused a good deal of confusion – was which, if any of the PTTs had ordered the device.

He mentioned Denmark, the UK, and Hong Kong where the Triemco is to be manufactured, as the target PTTs.

Each PTT in turn has said that either it did not know about ICT and the Triemco, or that no order had been placed.

But at the Department of Industry a principal permanent secretary was able to confirm that talks of substance between ICT, the DoI and representatives of BT had been going on for a year.

He also confirmed that the DoI had checked that the Stanford Research Institute had researched, designed and been paid for the Triemco 2000.

International Communications Technology, which is listed on the Luxembourg Stock Exchange and trades at about £20 a share, plans to raise £20 to £30 million via a share offer in London in the autumn.

The company has suggested that this event will take place in September and that the first working models of the device will be available for inspection and trial in the UK in October.

So far only photographs of the Triemco are available.

BAUER . . . Expecting decline in second quarter earnings.

Services industry catches a cold

IF America sneezes, the rest of the world catches a cold – or so goes the old cliche.

In the US computer services industry the first signs are emerging that something worse than a sneeze, but not quite pneumonia, is developing.

Lloyd Kanev, an analyst with New York stockbrokers Smith Barney Harris Upham, writes in his company's quarterly review of the computer services industry in the style of the Hitchhiker's Guide to the Galaxy.

He puts it like this: "The answer was: 'We're working for a living'. The question was: 'How are you being affected by the recession?' "

Kanev explains that, despite the different ways in which they heard it from various chief executives, the bottom line is the same . . . the order taking phase of the cycle is over.

He says he is hearing with increasing frequency that the sales cycle is lengthening, especially where high ticket items are involved. In some cases this phenomenon has appeared all too quickly, suggesting that the sales management and marketing functions at some companies might be in need of scrutiny.

The key question raised is whether the lengthening sales cycle will turn into deferrals or outright cancellations if the economic climate does not begin to improve as much as the economists would have us believe, Kanev says.

The positive factor that he and fellow analyst Donna Newby identify is that the actual earnings of the key software companies remained on track for the most recently reported quarter. The warnings about weaknesses in the marketplace given by some companies have not materialised in the form of falling profits.

This is in the context of software company profits in the last three quarters, which have shown increases of up to 50% on previous quarters.

Kanev and Newby caution that this is from a very low base in some cases. One of the companies which led them to take their cautious approach was Informatics General Corp, one of the biggest software service companies in the US.

A few months ago Dr Walter Bauer, chairman of Informatics, said the company expected to report a decline in second quarter earnings because of a recession-related weakness in some of the markets served by Informatics.

In relation to the UK, the sudden dip in Informatics orders may be a very late signal for that company. This year has seen a high level of attrition among UK service companies, with both Computer Resources and Zeus Hermes disappearing.

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PLESSEY PERIPHERAL SYSTEMS

Scottish disc maker's shares for US market

IN an ambitious move, shares of the fledging Scottish disc manufacturer Rodime are to be sold on the US market. Technical Development Capital, the venture offshoot of Finance for Industry and principal shareholder in Rodime, stands to make up to $5.8 million.

Rodime was set up in 1980 in Scotland to manufacture a range of 5¼in Winchester disc drive products.

First shipments of the company's drives took place in August 1981. To date Rodime has shipped £1,089,000 worth of its RO 100 series discs and has an order backlog of over £2 million.

The company has risen to volume production at a speed usually associated with American companies, and much of the early product has gone to Ampex in the US.

The deal with Ampex is a licensing agreement, and shipment of products to the States is likely to slip as Ampex gets its own facilities under way.

Rodime was founded by ex-Burroughs employees Leonard Brownlow and William Bachelor, and received early backing from TDC and the European Investment Bank.

The shares to be sold consist, effectively, of two separate lots. Lot one, 928,000 5p shares, is offered by Rodime itself and should raise about $13.9 million if the expected placing at $15 is successful.

The second lot consists of 782,200 shares which are offered by the founders, including TDC in the name of Finance for Industry.

The outcome of a successful sale would give TDC some $5,865,000 million and leave it with a 35% stake in Rodime.

This compares nicely with the £1 million or so that TDC put up to help get Rodime going.

And the principal founding shareholder, Leonard Brownlow, should receive $2.6 million for his 174,295 shares.

There can be few better examples of what can be achieved, and what can be made, by those who approach the problem of company start-ups in an ambitious and professional way, even in the UK.

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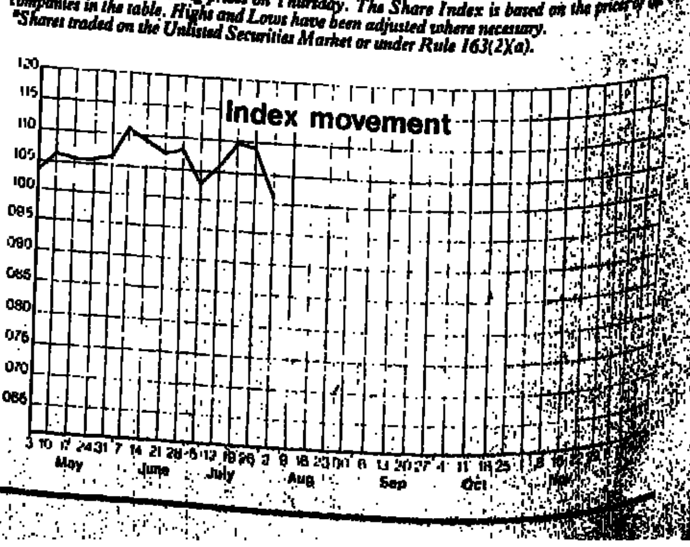
CW SHARES TABLE

Date 5/8/82 Index 101.17 Change [illegible]

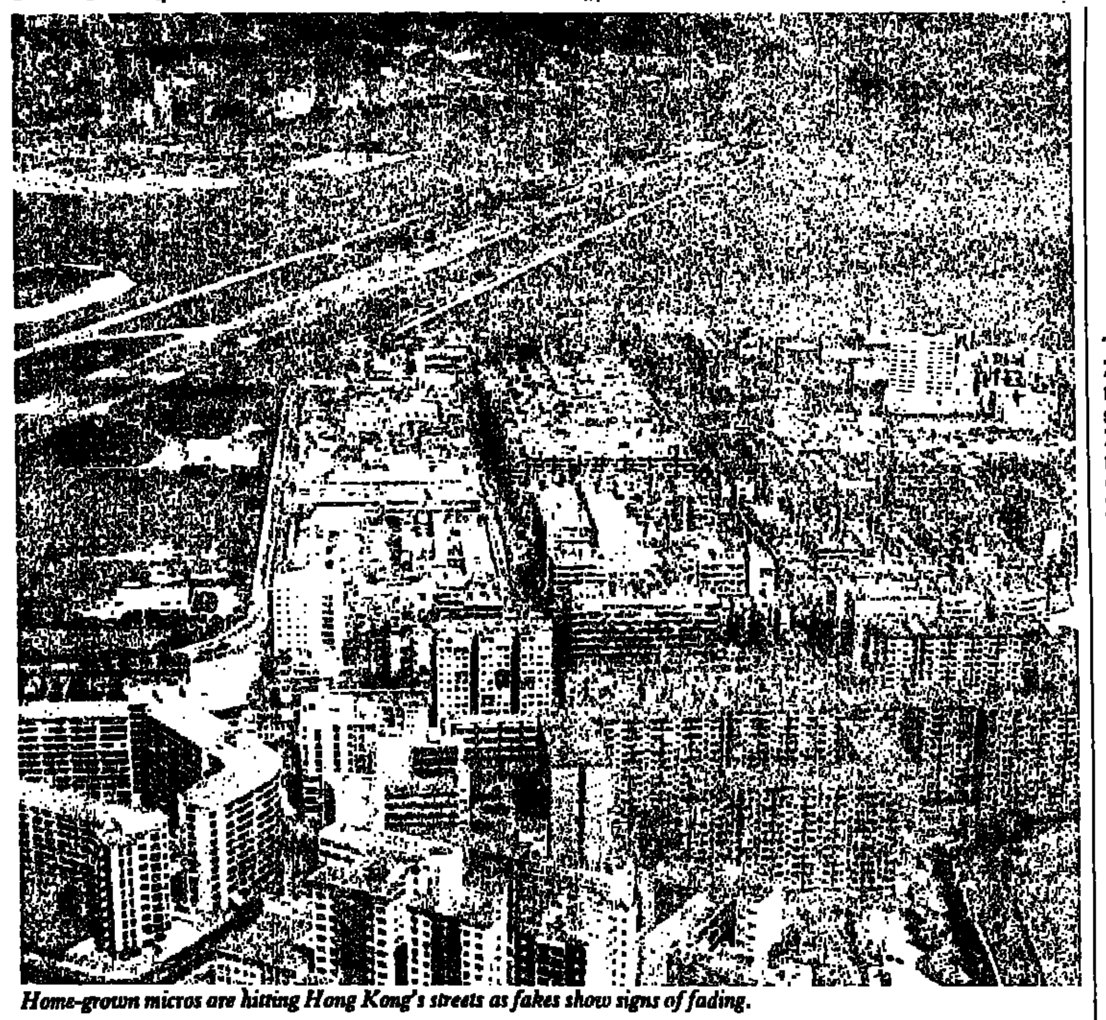
Pence 1982 High	Low	London Stock Exchange Stock	Pence Price	Chge
703	161	ACT (App Com) (25p)	200	1
180	160	BOC Int. (25p)	175	+1
30	18	B. Sov Kent (25p)	30	
127	101	Chubb (20p)	114	1
94	48	Cole Group (25p)	88	
303	233	C.A.S.E. (20p)	280	13
730	445	De La Rue (25p)	485	+10
360	235	Extel (25p)	340	
478	312½	Ferranti (50p)	309	18½
1087½	797	GEC (25p)	1062½	17½
84	33	ICL (25p)	89	
47	41	Kalamazoo (10p)	43	
310	273	Kode Int (25p)	205	6
306	215	Memec (10p)	293	+3
170	110	Muirhead (25p)	160	
284	218	N'market (10p) ($.05)	245	
820	570	Norsk Data	600	
380	286	Office & Elect (25p)	380	
540	445	Philips Lamp (fl10)	505	
628	348	Plessey (50p)	523	2
97	28	Quest Auto (10p)	30	
488	363	Racal Elect (25p)	480	6
260	171	Rediffusion (25p)	220	8
466	398	Thorn-EMI (25p)	473	9
90	74	UC&T (50p)	87	7
		OTHER MARKETS*		
90	80	Bus Comp (10p)	80	
567	415	Comp Serv (£1)	451½	
200	76	Consult (C&F) (10p)	200	
252	248	Io Tech (25p)	250	13
60	52	Knight (5p)	82	–
138	112	Miles 33 (10p)	138	–
170	88	NMW (£1)	89	+18
104	43	Rolfe & Nolan (10p)	104	-11½
130	78	ScanData (10p)	118	+2
240	180	Star Comp (10p)	240	–
106	88	Trident Comp (10p)	88	+10
112	78	Zygal Dyn (5p)	108	-4
168	168	Int'europe Tech	168	-2

$ 1982 High	Low	US Stock	$ Price	Chge
29¼	18	Amdahl	21	[illegible]
29¾	11⅛	Apple Inc	12	[illegible]
28	22⅞	Auto Data Pro	23⅞	[illegible]
[illegible]	[illegible]	Burroughs	31	[illegible]
13¼	7¼	Comp Auto	8	[illegible]
15	11⅛	Comp Sciences	12⅜	[illegible]
16½	12¼	Comshare	12½	[illegible]
45½	21	Control Data	23⅞	[illegible]
38¼	21¼	Cray Research	22⅞	[illegible]
[illegible]	24¼	Data General	28⅞	[illegible]
49½	12	Datapoint	12½	[illegible]
24½	10½	Dataproducts	17	[illegible]
87½	64	Digital Equip	84	[illegible]
70	18¾	Elec Data Sys	26½	[illegible]
6½	3½	Gen Automation	3½	[illegible]
38¼	22	Harris	26⅞	[illegible]
48¼	36¼	Hewlett Packard	41⅞	[illegible]
78	63	Honeywell	68½	[illegible]
31¼	20⅞	Intel	31⅜	[illegible]
69¼	57	IBM	69½	[illegible]
50	39½	Litton Ind	40	[illegible]
13⅛	9⅛	MDS (Mohawk D)	11⅞	[illegible]
24	18	MSA (Mgmnt Sci)	21⅞	[illegible]
18¼	8	Mngmnt Assist	9⅞	[illegible]
8⅞	6¾	Modular	7⅞	[illegible]
69	50¼	Motorola	68	[illegible]
24½	16⅛	National Semi	17⅞	[illegible]
65⅛	40½	NCR	62	[illegible]
26⅞	17⅞	Perkin-Elmer	17⅞	[illegible]
22⅞	16½	Prime	17⅞	[illegible]
40	29⅞	Raytheon	38⅞	[illegible]
28¼	14¼	Signal	16⅞	[illegible]
34	21	Sperry Corp	21⅞	[illegible]
34½	10¼	Storage Tech	16⅞	[illegible]
79½	16⅛	Tandem	16⅞	[illegible]
35	26¼	Tandy	28⅞	[illegible]
93¾	70⅞	Texas Inst	84	[illegible]
27¼	12½	Tymshare	16	[illegible]
35⅞	27	Wang Lab B	27	[illegible]
10½	7½	Wyly	8⅞	[illegible]

The table shows the closing prices on Thursday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
*Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).



by Robert Parry



Home-grown micros are hitting Hong Kong's streets as fakes show signs of fading.

Apple fakers face blight

IS the bloom going out of the Far Eastern micro fakery business? While US micro maker Apple Computer – plagued by a crop of Apple II look-alikes from Hong Kong and Taiwan – is pushing on with legal action and seizing copies of the pirated machine, there are signs that the fakers are turning away from that business.

The Apple fakes have become a victim of their own success. The market is becoming saturated and competition is holding down prices, so the micro makers are expected to develop more sophisticated machines, building on the basic computer knowledge they have picked up by copying Apples.

In Taiwan, Sunrise Computer Services, which claims that it pioneered Apple copying, now says that the game is no longer profitable. Nobody wants to make them anymore. Sunrise itself has stopped producing the Apolo II (its Apple II copy) and is developing an Apolo III. Sunrise says this machine is its own design rather than a copy of an Apple micro, but will run Apple-compatible software.

Eight Apolo IIs have been seized by lawyers acting for Apple following an order obtained in the Taiwan courts. Apple contends that the Apolo II violates copyright of the Apple II ROM.

The seizure order does not imply any judgment on the merits of the case, and Apple would still have to prove that Sunrise had copied the ROM if it wished to pursue the case further through the courts rather than settle privately with Sunrise.

But Apple's Taiwan lawyer says that the granting of the order leads to the conclusion that the copyright was infringed. He adds that the main point of Apple's suit is to stop the infringement rather than seek damages, though Apple is said to be asking for $30,000 compensation from Sunrise.

The cheap fake machines, which have cut into legitimate Apple II sales in the Far East, appeared in profusion after the Taiwan goverment banned video game parlours. Manufacturers were left with large stocks of components and turned to building fake Apples. As many as 50 companies are thought to be involved in the business.

Meanwhile in Hong Kong, electronics manufacturers are also turning to building their own designs rather than assembling for other companies – or faking successful micros.

Conic Group, one of Hong Kong's largest electronics companies, has a personal computer well under way, as do several other companies. It is not known when these will come into production, but there are machines built in the Colony already being sold under Hong Kong companies' own brand names.

Comx, a subsidiary of a company that distributes and makes hi-fi equipment throughout Asia, is selling a multi-user machine running Unix for under $10,000. The machine appeared in April, and the company is aiming to sell 30 systems a month this year, rising to 100 a month by mid-1983.

Zilog back in the 16-bit race as AMD signs second source contract

THIS week sees welcome news for Zilog's trailing 16-bit contender in the microprocessor race. A new second source agreement between Zilog and AMD has been signed for the Z8000 family, squashing the "unfounded speculation that has been rife concerning a possible rift between Zilog and AMD," says Zilog's UK managing director Phil Pittman.

The announcement follows the start of sample availability of virtual memory versions of the Z8000 family last week.

The Z8000 family standing suffered last year when AMD added a rival 16-bit processor, the 8086 from Intel, to its stable. Despite protestations from both Zilog and AMD that the Z8000 processors and peripheral chips would still be manufactured by AMD, the move was widely seen as a body blow for Zilog. AMD's stopping of work on developing new peripheral chips added to this view.

But the new cross-licensing agreement between the two companies will bolster the Z8000 family, says Pittman. It extends the deal made four years ago to cover more processors and peripheral chips, and also brings in Zilog as a second source for AMD's Am7990 Ethernet integrated circuits.

As well as the established Z8001 and Z8002 processors, AMD will second source the two virtual memory devices, the Z8003 and Z8004. Peripheral devices designed by Zilog and featuring in the deal include memory management units and communications controllers.

In return, Zilog will manufacture parts developed by AMD (before it took on Intel) including direct memory access controllers, a burst error processor and a data ciphering processor.

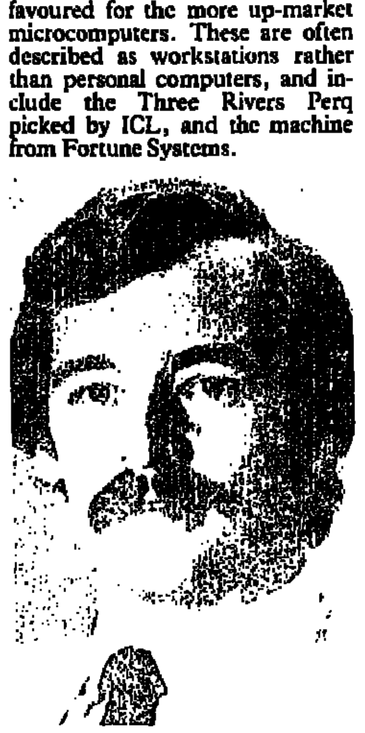
The new deal also extends the cross-licensing deal by allowing both companies limited rights to sub-licence certain devices to other parties. This means that Zilog can give the other second sources for the Z8000 family the means to produce the AMD-developed parts, says Pittman.

Previously these parts were excluded from the arrangements Zilog has with SGS Ates, Sharp and Toshiba.

Zilog – in the UK at least – will be returning to the 16-bit fray with new vigour, armed with this affirmation of support. "We intend to attack the market strongly with these parts," says Pittman of the peripheral chips. "Most of the devices have been designed to be of universal application and can easily be used to advantage in systems based on other processors."

The market for the use of the 16-bit processors in microcomputer applications has started to look like a two-horse race. In the lead is Intel with its 8086 family, which includes the 8088 chip picked by IBM when it made personal computers respectable by bringing out its own Personal Computer.

The other runner, though maybe in a different race, is the Motorola 68000 family, which is winning designs from Intel, according to Motorola, and is favoured for the more up-market microcomputers. These are often described as workstations rather than personal computers, and include the Three Rivers Perq picked by ICL, and the machine from Fortune Systems.



PITTMAN . . . Bolstering the Z8000.

'Deal a boost for Ethernet chips'

THE adoption of Zilog as a second source for AMD's Am7990 series of Ethernet chips is seen as a boost for AMD. "It will significantly enhance the acceptance of the family as the industry standard solution for low-cost implementation of an Ethernet node," says an AMD spokesman.

The AMD chips are scheduled to appear by early 1983, but Zilog versions are unlikely to be seen until six months after this.

Currently interfaces to the DEC/Xerox/Intel Ethernet are achieved through circuits built up on boards from numerous different components. Single chip implementations which would make it easier and cheaper to build Ethernet interfaces into equipment have not yet appeared, though several VLSI chip sets are imminent.

Ungermann-Bass, manufacturer of the Ethernet-like Net/One, is collaborating with Fujitsu and should produce devices compatible with Ethernet any time now. Two chips conform to level 1 (the physical layer) and level 2 (the link layer) of the International Standards Organisation reference model for networks.

These chips should pip Intel to the post, as its chip set implementing the interfaces will not be launched until October. The devices will perform functions currently done by boards from Intel.

Intel is also developing a serial-bus version of the Ethernet controller chip. This is for a miniature version of the local net for use within a single equipment cabinet, linking subsystems together.

The chips should be considerably cheaper as they will be able to work more slowly. The shorter distances involved mean lower data rates can be used without contention problems.

Swiss drug subsidiary buys out Futuredata

TEST equipment manufacturer GenRad has sold its Futuredata division to Kontron, instrument subsidiary of Swiss drug company Hoffmann-LaRoche. Futuredata designs and manufactures microprocessor development systems, supporting a range of processors from several semiconductor houses.

The formal agreement was signed in mid-July, and the deal was due to be completed last week by a cash payment from Kontron of $5.5 million. GenRad, a US company with a UK subsidiary, had been looking to shift the Futuredata division for months.

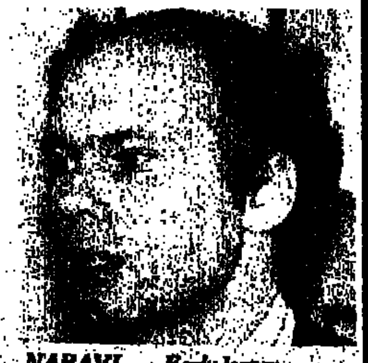
In the UK the GenRad development system operation was acquired by Kontron in a local deal last February. The operation moved over to Kontron in St Albans "lock, stock and barrel, with virtually no fall-out," according to Cliff Gadsby, marketing manager at Kontron.

Although almost all the GenRad people came over to Kontron, there were some staff casualties mainly on the Kontron side.

An early leaver was Chris Nabavi, who was heading Kontron Electronics before the acquisition. Ex-GenRad manager Dave Findlay was appointed general manager of the combined operation, and Nabavi left promptly.

With the GenRad/Futuredata equipment now under its belt, Kontron is broadening its product range. The computer operation based in Munich is growing fast, with a new range of products to be launched here by its year-old UK subsidiary next month. It was originally set up to support Kontron's strength in medical and scientific instruments.

But it is spreading out from there. "We're trying to emulate the Hewlett-Packard product range really," says Gadsby.



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GILB'S MYTHODOLOGY

The Principles of Infotecture—9

Trying to make too complicated systems

Tom Gilb is an independent consultant, lecturer and author on computing topics.

THE Ninth Principle of Infotecture states: "A theoretical analysis of the attributes of any set of design techniques must be supplemented by the earliest possible *practical* measurement of reality."

In a supplement to this principle, I have added: "Early evolutionary delivery steps can be used as a generally applicable measurement method for this purpose."

In straightforward terms the systems we are trying to make are too complicated.

We can dream up all the fancy analysis tools for modelling the future system that our human intelligence can conceive. But reality is a nasty cuss, and refuses to conform to our models, so we are used to the ideal of trying things out in practice.

Engineers call it "breadboarding". Aeronautics engineers make use of "wind tunnels". Marketing people use trial markets.

Programmers just code it and run it — who needs theory on a personal micro?

But many of the systems we design for computers need something better than the best design analysis tools available, before we commit the resources necessary to implement them.

And they need something better than simply building a complete system and trying it out on reality.

So we use implementation phases — one, two and three. The user is screaming for the system faster than we can implement it anyway (three years, we hope), so in a year or two we'll promise to deliver a basic part of it to keep him happy while we do the rest of it. And we can use the first phase to make some of our mistakes on.

The concept is quite commonly used. Indeed, it is difficult to avoid.

But have you ever considered the effect of changing your traditional "phased implementation" approach by an order of magnitude? Yes, I mean planning and delivering a major system in something like 50 phases — one each month for the next 50 months.

This will undoubtedly sound impractical and even crazy to many readers. You can see the advantages, but you can't see how you could do it with your systems.

The fact is that this "evolutionary delivery" method has been used for years on large and small projects of all description by my clients and others, with great success.

The basic solution is to evolve away from your old system gradually (two per cent change for each step), and to have a highly "open-ended" new architecture in your new system, so that you can really afford to learn from those early phases and modify your plans according to experience. This is like designing moveable walls in a hotel banquet facility instead of brick walls.

The practical problems of evolutionary delivery of systems are almost always surmountable in practice, although most people are sceptical about this until hand-led through a practical example of their own.

Most of us have some semblance of experience in this through phased implementations and maintenance enhancements.

Evolutionary delivery offers us an interesting alternative to pilot tests and prototyping, because they offer us practical measurement of system effects, while at the same time delivering useful final results to an organisation.

It is worthwhile arguing that evolutionary implementation measurements are probably superior to pilots and prototypes since they tend to be delivered to a real productive environment. That reality is a far better feedback mechanism than a "representative user manager" who approves a dummy prototype.

The proof of the pudding is in the eating.

Tom Gilb

FOCUS

The pitfalls of DP management

AS part of a research project for a textbook on Survival Management, Douglas Bybee has been working his way through a selection of DP executives and users. It could be, however, that it is the author's survival which is at stake as DP management teams become increasingly irritated at forecasts of their imminent demise.

The author reveals his independence by admitting that initial research has confirmed his belief that DP management are unpopular because they are poor managers. To prove the point, he has produced a list of 10 basic DP management pitfalls.

His first point suggests that DP personnel are generally disliked because they are overpaid. While that may be the case in the US and among State and banking installations in the UK, few DP professionals would take this particular comment lying down.

Other strongly contested pitfall points are that the DP manager is intimidated by vendors, that they cannot communicate, and that they are unable to cope with the human component. But far from being hung-up by the vendor, the professional DP manager can spot at a distance of several cable runs the competent from the not so competent salesperson.

The good salesperson is the one who understands not only the total potential of the range of equipment and services, but also appreciates the nature of the users' business and operation and can therefore contribute meaningful relationships.

The not-so-hot variety are those who arrive without appointment, should their computer operations suffer serious interruption or some form of disaster. The report states that some 20% of companies surveyed are now fully aware of security threats and have established formal back-up arrangements.

Meanwhile, UK DP defences will have to be maintained in the face of comments by Ron Yearsley of BIS, who says it is not so much the year of IT but the year of the pendulum. About to be struck from their perch are the DP team who have failed to adjust to the needs of their organisations.

But before DP professionals take to the hills or the nearest pit for refuge, a glance at the latest DP job vacancy statistics should be reassuring. Demand for specialist skills have seldom been greater or more rewarding.

Alan Simpson

HUMAN TOUCH

Manuals by design

HAVING written the programs we do the documentation. Note that we don't write documentation, leave alone design it.

This leads to the purpose of documentation. No clear purpose results in a long-hand written English explanation of what a program does and how it does it. Even the maintenance programmer finds it easier to understand the program than the documentation, so little wonder that the latter is not kept up to date.

May I give a purpose for documentation and manuals: To enable someone who does not know and understand a system to use it. In a word, instruction.

Questions come up — like which is the best typeface, and how long should the lines be in the manual.

There is no best typeface, but stick to one that is familiar and that most people like. In hindsight it is obviously more difficult to learn if you are struggling with a strange typeface.

Lines over about four and a half inches long give the eye difficulty in selecting the next line to read. Having read this proposition we now experience the difficulty in practice, but that might be attention, suggestion.

Meaning is not only conveyed by words. We have all heard that a picture is worth a thousand words but the precision of computer systems does require rather more explanation than a strip cartoon. Words are used to convey many separate notions and each notion has to be related one to another by the learner. Headings and paragraphs are the conventional means of breaking up text into notions.

More effective can be white space. Just be generous with your blank lines. Use narrow white space to separate related notions and wide white space for unrelated notions. Heavier type can be used to identify points or phrases that the learner has to understand in order to build up his knowledge. Remember that almost everything we know is remembered in relation to other things; few of us have a total recall capability of straightforward facts.

It is always interesting to hear the jargon of another technology, and instruction in the absence of a teacher is called "Distance Education". Not surprisingly such organisations as the Open University have devoted resources to the study of the subject. One of the requirements of professionalism is to be aware of the developments in related disciplines that impact your own activities. For those that have this interest at heart I list some books below.

Cliff Dilloway

Cliff Dilloway is an independent consultant specialising in accounting software, taxation and payroll.

Designing Instructional Text. James Hartly. Kogan Page (ISBN 0-85038-098-7)

Distance Education. Borje Holmberg. Kogan Page (ISBN 0-85038-162-6)

Education of Adults at a Distance. Open University. Conference proceedings edited by Professor M. W. Nell. Kogan Page (ISBN 0-85038-415 X)

DOWNTIME

Upsetting the Apple cart Down Under

WOE betide those who dump the Apple cart! I came to this conclusion after studying a report telling how Apple computers have been dumped on schools in New Zealand at knockdown prices.

The case follows a theme familiar in big business. It is rather like the situation we have here with large oil companies subsidising cheap petrol in an attempt to starve out their smaller mainline competitors.

In this case the local rival to Apple in New Zealand, Polycorp, has accused Apple of wielding its financial muscle in an attempt to wipe it off the face of Kiwiland.

Polycorp initiated an investigation by the NZ Customs Department, which eventually slapped a dumping duty of $820 on Apple micros. Apple is fighting the decision.

At the same time Apple is promising schools which have taken advantage of its quarter-price offer, a batch of extras to compensate for the dumping duty.

And so the saga rolls on.

Meanwhile, most of the schools involved say they still prefer Apple computers even at a price related to by the dumping duty.

I can there is a moral emerging from the and other legal battles involving computer companies which feel the trading rules are being breached.

You can take a man to court — but you can't make him buy.

Aye, there's the rub(out)

AS I scour the corridors and restaurants of power in the tireless search for truths to pass on to my avid readers, the occasional token gift is passed on to remind me of the companies that have shared their most intimate secrets.

One such token recently bestowed was a money clip, with built-in knife and nailfile. It bore the names of my hosts, Mitel, ICL and Norton Telecom, who were celebrating the launch of the first product in their partnership.

I smirked with satisfaction to think that my folding money would henceforth be kept tidily folded, and I would have a knife and a nailfile constantly at hand for emergencies as well.

The device's fascination did not end there. After a (decent?) interval news reached me of a partnership between Mitel and yet another company, a foreign but nevertheless irritating rival of ICL's, yes, IBM.

That very same week, during a routine examination of the cash-flow position, I noticed that the clip was losing part of its information load. The names of Mitel's previously signed-up partners were swiftly disappearing, leaving Mitel in sole occupation.

There turned out to be nothing supernatural about this process — it was simply due to the fact that Mitel's name and logo had been painted into indentations in the clip, while the other companies' were painted on to a flat surface.

But, coinciding as it did with the announcement of the new agreement, the disappearance did have me wondering whether I would soon see a fresh set of initials appear miraculously next to Mitel's name on the clip.

Or whether Mitel builds similar arrangements into all its partnerships?

Image of a salesman

ONE of the fables of the computer industry is that salesmen (or women), often selling inoperative kit, can earn astronomical salaries in the course of their business. And they are given to buying (or using) large and/or flashy cars.

It must be admitted, though, that some companies have a high flying image, even though their products are mundane and/or lacking in technological innovation.

Others have mundane products and mundane images.

But it must have caused a Cortina-driving Honeywell salesman to develop a reptilian green exterior when he crashed into a Rolls-Royce on a busy London Street.

"Terribly sorry," quoth the Honeywell man.

"That's all right," said the driver of the Rolls. "It's a company car anyway," he added disdainfully.

"Oh, so's mine," said the Honeywell man, "I sell computers."

"That's funny, so do I," said the Rolls driver, getting back into his barely damaged car.

"Who for?" asked the other, his eyes wide with incredulity.

"IBM." And with that he left the Cortina driver looking more than slightly envious, and thinking where he had last seen a job advertised at Big Blue.

The truth, as it emerged, wasn't quite this simple. The Rolls driver just happened to be the boss of one of the UK's leading independent leasing companies.

Mickey Mouse system?

FRUSTRATED programmers are often driven to making rather emotional statements concerning the misbehaviour of their coding. Remarks such as "The damn thing's just doing it to spite me", and "It's got a mind of its own" are, of course, not meant to be taken seriously.

But evidence has come to light which takes this a stage further. In Walt Disney's new film, Tron, which takes place for the most part inside a computer, two programs are seen in conversation.

Bemoaning the state of affairs within the machine since the rise to power of a megalomaniac supervisor program called MCP, which has put a block on all I/O channels, one piece of software asks the other:

"Do you think the users still exist?"

To which its companion replies: "Mine does, without the users we are nothing."

Charles

10 YEARS AGO

From Computer Weekly of August 17, 1972 . . .

FIRST major contract for Allied Software Houses, the consortium of Applied Computer Sciences, Computer Systems and Programming, F International and Plymouth Computer Services, was for the development of Cobol programs to update and maintain the Priam database set up by the Civil Service Department . . . The policy of continuously enhancing its existing computer ranges while cutting prices on certain products, was taken a step further by Digital Equipment Corp with the addition of processors to the PDP-11 and PDP-15 ranges . . . At a mass meeting Honeywell workers, who had been on strike for five weeks, rejected a pay offer of £37.50 a week for craftsmen. Over 4,500 workers were idle . . . The International Software Products Association, ISPA, was formed to improve the marketing of software products . . . Thanks to the success of its Molecular 18 series, Business Computers Ltd made a pre-tax half-year profit of £73,000 . . . The first Honeywell Series 2000 to go into local government action was a 98K model 2040, worth about £150,000, to be installed at Barnsley.

Crossed lines

BEING of mixed Irish and Scottish descent, I get my back rubbed up the wrong way by the Yankish habit of attributing all things British to England.

We have the US market survey company Frost & Sullivan, for example, referring to the size of European printer markets: "A close second is France, next England . . ."

This is perhaps a forgiveable mistake since the printing process was invented by William Caxton, an Englishman.

What I cannot forgive the Americans is their common belief that the telephone was invented not by a Scotsman (it was), nor even an Englishman — but a Canadian.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, August 12, 1982

What technology is costing the taxpayer

BRITISH taxpayers have an unrivalled rate of success when it comes to funding financial disasters, and nowhere is this more true than in the supposedly burgeoning information technology market.

Taxpayers have forked out a total investment in four projects of no less than £175 million, possibly a lot more. And for what? The answer, sadly, is "Very little".

Two of the four projects are no longer going concerns. Nexos, the National Enterprise Board's office automation and word processing subsidiary, has all but shut its doors, with an estimated closure cost of about £28 million. The British Technology Group says officially that Nexos lives, albeit on an old and tired life support machine. And at Insac, the company the NEB set up to extol the virtues of British software in the lucrative US market, the whole operation sank, with about £20 million of taxpayers' money written off.

As for the other two, Inmos and United Peripherals, neither is a picture of rosy health, though neither is in quite the same parlous state as Nexos or Insac.

Inmos, the great British chip shop, has cost the public about £95 million, all for a return of about £5 million in sales. It is targeted to break even in 1984, and many pundits forecast its ultimate demise. To be fair, its performance is not so far behind target that it could not catch up within the time available. But the fact that it is behind at this stage casts doubt on the future.

UPL, publicly-owned except for a 24% Control Data stake through Data Recording Instruments, another NEB company, is reckoned to have cost £32 million.

And it looks as though the initial investments in these four companies, at least £175 million, will never be recouped, let alone yield an acceptable rate of return.

So what has gone wrong? It cannot be the lack of expertise in the industry: the UK has a large number of internationally successful computer and computer related companies: CTL, BIS, Hoskyns, Sinclair Research and the electronics four of Plessey, GEC, Racal and Ferranti, to name but a few.

But none of these companies was set up in a blaze of taxpayer-fuelled glory, even if they had later government participation. They have achieved their success by native ability, rather than some wild-eyed prophetic vision.

By all means let the government, and hence the taxpayer, help to fund Britain's technological future. But — and it is a big but — let that future be carefully, and thoughtfully planned, and let there be a high level of accountability for the taxpayers' stake. It might serve a useful lesson if the government were to hold a public inquiry into where our £175 million has gone, so that the same mistakes are not made next time round.

Good behaviour

LITIGATION is a major American pastime. And while no one would wish to inhibit any company's right to justice where there is a genuine grievance, it would be well to remind those US computer companies which trade internationally that the ways of main street Hicksville are not the ways of the UK or Japan.

Taking UK public authorities to court for buying from the still fragile ICL, on the tenuous legal basis advanced by IBM and Burroughs, gives rise to the suspicion that both these companies have suddenly forgotten the risks attendant on not showing sensitivity to your host country's way of doing things.

It is not easy, in a recession-struck world, to stay your hand when all about you are busy in ways you may neither agree with nor understand. But the price of a business presence in countries other than your own is often a high degree of patience, as well as useful profits.

And those you hit out at in adversity may remain hostile in recovery.

Actions which may cause disruption should be taken only after the most serious and vigorous inspection of the cause and its outcome.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Alan Poulton, of Bushey, Herts, who wins £5.

How does a computer actually do its stuff? Don't ask. Think of it as magic. Most people who use computers neither know nor care . . .

Hotel Magazine

LETTERS

Suffering from IT

ONE of the most over used, yet poorly understood, words in the IT lexicon seems to be "communication". Desmond Benjamin (CW, July 22) tells us in a letter that IT concerns itself with only one thing, communication — and, as another Benjamin is a senior official for IT82, perhaps Desmond Benjamin is correct.

If this be true then IT82 has poorly communicated its reason for existence, and has thus reinforced the importance of *quality* of communication over and above the *means* of communication. Benjamin's argument — if that is the correct word — seems to be that global influences, beyond our control, will force us into using IT, or we will continue to decline.

Benjamin answers all the worries about the teaching of IT in schools by a series of questions which (in essence) ask "Have any other subjects suffered because of IT, and were the other subjects that good at what they were doing anyway?"

Other subjects *have* suffered in ways perhaps more complex than Benjamin realises; for, at a time when books and equipment are difficult to buy, the only money available to schools has been channelled into buying microcomputers; the provision of music lessons has been curtailed, through lack of money; so have swimming lessons for primary children, and so on.

I am at present conducting a survey into the public's awareness of information technology, and of IT (IT is *not* information technology); so far most of those surveyed knew a good deal about aspects of information technology (eg Ceefax, Prestel, VTR, or personal computers) but know nothing of IT82.

I still puzzle over Benjamin's statement "The world has shown that IT is now a major part of its organisation". It seems to communicate little that I can understand, or that the vast majority of the world's population can understand.

BORIS ALLAN

Stockport.

Come out!

GRAHAM BEECH'S letter in search of Smalltalk authors (CW July 29) raises an interesting point — if it's as good as I hope it is, why haven't we heard more about it? Yes, I know about the Smalltalk Byte issue, but that does not give a good overview.

In particular, what machine and what type of screen does it need? Can it be used in DP work, or for writing compilers, word processing systems, operating systems, or does it do away with such software?

Come out of the woodwork, you Smalltalk buffs!

MIKE PARR

Sheffield

Dismissal of shift leader

IT WAS with a mixed feeling of amazement and disgust that I read your article (CW, July 22) regarding the dismissal of a shift leader by Glaxo Operations UK.

The fact that Mr Ackad was dismissed for exceeding his responsibility by using a command which he himself had been responsible for implementing is, in itself, bad enough; however, if one adds to this the comments made by the Glaxo operations supervisor and the facts outlined in your article with regard to operators' pay, we would appear to be approaching a situation not dissimilar to the use of slave labour in the US cottonfields.

This may seem a somewhat emotional statement if viewed from the confines of a Victorian counting house, but we must all eventually recognise that the 20th century is here, together with computer technology which tends to be a fast moving animal requiring equally fast reflexes to control it.

I would suggest that any shift leader using site procedures which he himself wrote was attempting to control a technological beast which would otherwise pose a threat to the wellbeing of his company, his career, and the careers of his fellow employees and his supervisor.

I commend Ackad on his attitude to the situation in question which is exactly what I would expect from any of my shift leaders in similar circumstances. Who wants to be disturbed at 3 o'clock in the morning because of attempted system abuse when you have the necessary skills on site to prevent such a thing?

This leads me on to the other worrying factor that emerged from your report. The supervisor in question was quoted as saying "Operators should follow orders. It's not part of their job to question or change instructions." If this is a true attempt by Glaxo to suppress the use of whatever technological skills their operators may have, then it's hardly surprising that the use of initiative merits dismissal. While I agree with orders being adhered to, I, for one, would be concerned if my operations staff did not question or seek to change those orders in the event that they considered them inefficient, ineffectual or incorrect.

In conclusion, I would suggest that the three adjectives I have just used would be an accurate description of the management techniques employed by the operations departments of too many organisations in the UK.

RICK EMERSON
Operations Manager
LA Computer Services
Croydon.

Japanese market share

UNDER the heading 'Japan Trails in Electronics Market' (CW, July 22) you wrongly attributed our Mackintosh European Electronics Companies FILE survey of the Top 100 European Electronics Group as estimating the European electronics component market as worth $100,000 million.

The $100 billion figure, in fact, referred to the total combined electronics-only turnover of the Top 100 electronics companies operating in Europe, including turnover in all types of electronic equipment and components.

The combined European electronics turnover of the eight leading Japanese companies qualifying for inclusion in the Mackintosh FILE "Top 100" table, amounted to approximately 3.7% of the total across the whole range of electronics products, not just components.

Since the Japanese have very low market shares in a number of important product areas in Europe (eg military electronics, instrumentation, passive components, telecommunications) their involvement in area where they are stronger (computing, office equipment, consumer electronics) is relatively much higher.

The data from the Mackintosh FILE does not, therefore, contradict Alex d'Agapeyeff's comments on the strength of Japanese involvement in the fifth generation computer market.

P. W. K. RATHKEY
Editor
Mackintosh European Electronics Companies FILE.
Luton.

YOUR article (CW, July 22) under the title Japan Trails in Electronics Market was, uncharacteristically, full of errors.

I did not allege "that the Japanese electronic companies have a dominant market in Europe". I was pointing to the Japanese aim in their fifth generation project "to increase the bargaining power of their nation" which to me was frightening in view of their "domination of worldwide exports in, for example, consumer electronics".

The European electronic *component* market is not worth $100,000 million and I do not believe Mackintosh International ever said it was.

The Japanese do *not* have 3.7% of this or the overall electronics market in Europe (alas). Among other omissions you appear not to have taken into account licensing agreements.

A. d'AGAPEYEFF

London NW11.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Banks' role in industry

IT IS currently fashionable to blame banks for the difficulties of starting-up or developing small companies in the computer and high technology fields, and in this respect it is clear (CW, July 15) that Kevin Cahill is no exception to the rule.

I am surprised, however, by his summary (perhaps because he missed the presentation from the clearing banks) of the discussion on July 8 at the Heseltine Moss seminar on finance for computers and technology, because his conclusions are the reverse of my own.

Everyone I spoke to on that occasion seemed encouraged and surprised by the attitude of the clearing banks to high technology, with regard to the availability, both of development finance, and, in particular, venture capital.

I think it was recognised that adequate equity funding is an essential part of any financial strategy, where rapid growth is anticipated, and it has been the failure to distinguish between the proper role of loan and equity finance that has been the basis of the difficulty.

COLIN AMIES
Corporate Finance Director
Midland Bank
London EC2

Interference problem

WITH reference to your report on radio interference (CW, July 29) it surprises me that more attention is not paid to this problem.

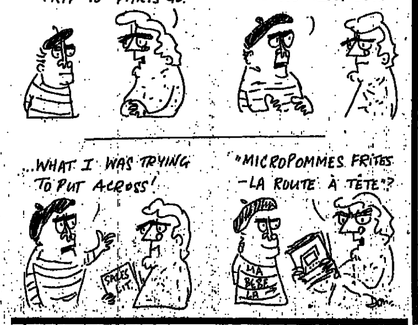
I remember having a similar problem some years ago regarding a system which kept falling over at Heathrow. The cause was found to be a radar system which "got into" the disc drive. The solution was a Venetian blind. However it goes without saying that a vast amount of RFI (radio frequency interference) is not caused by the transmitter but by the piece of equipment, that is to say the equipment picking up the transmission and reacting to it. The problem can also be reversed in that the equipment itself radiates energy over a wide spectrum causing a wideband hash to be broadcast.

There seems to be a lack of attention and legislation to this problem, so people carry on building quite unaware or even with deliberate ignorance of the problem.

With the latest knowhow it should be possible to derive information from somebody's system simply by listening to the hash generated. The military seem aware of this and screen everything so why shouldn't we?

PAUL COENRAATS
Systems Engineer
ITT Business Systems
Sidcup, Kent.

Liveware File by Don



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OP SPOT by Andrew Thomas

This week Op Spot visits a London recording studio to see how a computer can provide much-needed extra limbs

If you want an op with more than 24 arms — try a computer

MENDELSSOHN . . . "It's fag proof but not too keen on cups of coffee."

WHEN Thomas Edison gave the world the opportunity to record its sounds for posterity, the singers, musicians and politicians desirous of immortality were obliged to shout their words of wisdom into a horn with sufficient vehemence to waggle a small needle as it was dragged bodily across a wax cylinder.

It was not long before an entire industry sprang up developing ever more complex methods of recording sound. Unfortunately the introduction of studio mixing desks capable of processing more than 24 channels of sound was not matched by the breeding of engineers with more than 24 hands to operate them.

But the computer is coming to the rescue.

In order that the problems facing the recording engineer can be understood, it is first necessary to look at the recording process from his position.

The actual mechanism of recording is quite simple — put the performer in front of a microphone, amplify the signal, add the desired tonal correction, and feed the result to a tape recorder.

The procedure becomes slightly more complicated with the introduction of signal processors — echo units, phasers and so on — but is still not beyond human comprehension. Even mixing desks with more than 32 channels, though daunting in appearance, are merely extensions of the single microphone concept, each channel dealing with a single instrument or voice.

Where the whole system falls down is with the introduction of the human factor — the producer. No producer worthy of his 10% cut of sales will entertain the idea of leaving all 32 channels at the same level throughout a track, let alone the equalisation and effects.

The hapless engineer is thus required to manipulate the 2,500 controls found on a typical 32-channel desk, in exactly the same way, at exactly the right time, while changing just one parameter until the producer is satisfied with the result.

As if this state of affairs was not bad enough, the capital tied up in a top recording studio means that maximum use must be made of the hardware in order to recoup costs. Thus the studio will be used for several different recordings and mixings simultaneously, work on them alternating as and when the producers and artists are available.

Setting up the desk before work can restart on a track is both laborious and time-consuming, time when the studio could be more profitably employed.

If only there was a method of automating mixing desks . . . . .

Well, there is. Thanks to the trusty computer, the need for dubious genetic engineering experiments to develop a recording engineer with extra limbs has been obviated.

SARM is a recording studio in London's East End, close to Aldgate East station. In March, it took delivery of a new, computer-controlled 32 channel mixer from Oxford-based Solid State Logic.

When work starts on a new mix, a floppy disc is used to record the name of the track, the artist, the engineer, the album name and so on.

Each of the 32 tracks is designated an instrument or voice, and a time code is recorded on one of them. The 32K Computer Automation minicomputer can then locate any point on the tape to within one-25th of a second. Individual verses, choruses, or even notes can thus be accurately and consistently located.

The computer also looks at each control on the desk 25 times a second, and notes any changes in setting on the floppy disc.

Chief engineer Julian Mendelssohn (no relation) told me that most tracks can be accommodated on a single floppy disc but the amount of space required depends on the number of level changes made during the mix.

"Having the mixing information on a floppy is much better than the early computer desks which recorded it on a spare track on the tape," said Mendelssohn. "Each time you changed something in the mix, you had to bounce the data on to another track. Delays in the electronics meant that the more changes you made, the further out of step the control information got.

"With the floppy, the mixing information stays in sync no matter how many changes you make. It's *the* system, and SSL is *the* manufacturer."

SSL started life as a manufacturer of pipe organ switching systems, and also ran a recording studio. It was decided that an automated mixing desk would be an asset, but nothing suitable was on the market. The company was not to be deterred, and went on to build its own, based on Computer Automation hardware. It is now building its own computers.

In the five years it has been making computerised desks, SSL has sold more than 60 around the world, with the BBC taking ten of them. A further 36 are due for delivery this year.

The desk at SARM is an SL4000E, worth over £100,000. A small monochrome VDU is built into the desk, as is an alphanumeric keyboard and a keypad enabling single-key entry of the most commonly used verbs. Off to one end of the desk is a large colour monitor which duplicates the small display, making it far easier to see at a glance what is going on.

During a mix, a variety of displays can be shown, ranging from a representation of all 32 channels, showing the changes in fader levels in real time, to a large-scale blow-up of a single section of one channel. This last is one of the most impressive uses of computers I have seen in more than a decade in the business: simply touching a control causes the relevant section of the channel in question to be flashed on to the screen in living colour.

"The whole system is very user-friendly," Mendelssohn told me.

> **"If a mistake is made, the computer not only calls the engineer by name, but flings in the occasional insult too . . . the next release of the software should have a random insult generator built in"**

"It always tells you if you've done something wrong rather than leaving you in suspense."

And the desk was indeed user friendly, although user-familiar might be a better description. If a mistake is made, the computer not only calls the engineer by name (this information is already on the floppy being used for the track), but flings in the occasional insult too.

"The next release of the software should have a random insult generator built in," said Mendelssohn.

Because all the information required to set up the desk for a mix is held on a floppy, it is a simple and quick process to move from working on one track to another. Any studio in the world with SSL equipment could use the floppy and exactly recreate the settings.

Most of the maintenance on the desk is carried out by the staff at SARM, although SSL supplies engineers should a major problem occur.

"Most of the trouble we've had has been with the software," said Mendelssohn, "The hardware itself is more reliable than a manual desk."

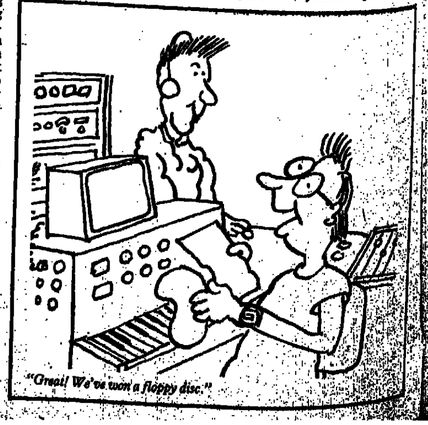
Problems with the computer itself have been limited to fluctuations in the mains supply causing trouble, but these have been few and far between. The desk is very robust, as it must be considering the amount of use it will get in its expected 10 year life.

"It's fag proof, but isn't too keen on cups of coffee," observed Mendelssohn.

Being one of only six London studios with a computerised desk, SARM attracts a wide range of clients. Recent users include ABC, whose album Lexicon of Love was at Number One for several weeks, Dollar, Spandau Ballet, Monsoon, and Peter Gabriel.

It's always refreshing to see an application of computers which gets away from the mundane, and my only worry is how on earth I can persuade my bank manager to give me the six-figure sum required to buy one of my own.

The heart of the desk. From the top: Multitrack recorder remote control, VDU, keypad and alphanumeric keyboard.



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PROGRAMMERS PAGE by Philip Hunter

The donkey and cart still deliver the Guinness in Ireland. But an electronic revolution is underway . . .

Not-so-green isle sets up DP jobs for UK

IF you had mentioned the word software to the Irishman of ten years ago he would probably have been reminded of a vital ingredient in the making of his black stout beer — the Irish moss that grows in the bogs. Today he is likely to be better informed, caught as he is in the flush of an electronic revolution.

The green country now boasts an annual growth of 30% in its computer industry, the highest in Europe.

Critics point out that this growth is largely artificial, generated by a plethora of grants from IDA, the Irish Development Authority.

The marketplace, these critics claim, is dead as Laker Airways.

Nevertheless several software companies have set up ventures in Ireland that will create jobs for both Irish and UK programmers. Nine US companies have recently set up subsidiaries in Cork that will, says the IDA, create 2,200 jobs, mainly in programming.

About 400 of these jobs are likely to go to UK programmers, at least temporarily, according to one of the agencies involved. Many of the jobs will be filled by current employees of the companies concerned, but vacancies are expected for skilled freelancers.

The UK contract agencies now report a flat market in Eire, with just the occasional client popping up with a requirement.

There are Irish contract programmers and analysts on some of their books, but according to UK agency Computastaff, they are more likely to find work in the UK than in the Republic.

One problem in dealing with Irish contractors is poor communications in Ireland. "Their telephone system is 50 years behind the times," says Caroline Tee of Computastaff. "We have a lot of trouble catching each other."

Pat Barry, of the IDA, agrees that the Irish contract market is very small. "Contracting is not common in Ireland, only in lecturing," he says. A spokesman for one of the UK agencies suggests that this may be because the Irish are reluctant to fork out the huge wages that contract computer staff in the UK can command.

Barry points out that there are plenty of well qualified Irish staff willing and able to take up permanent posts.

The picture of a depressed Ireland with a lot of manufacturing and software development for export, is confirmed by Distributed Computer Systems (DCS), one of two UK companies which has recently set up a Dublin operation.

According to its managing director, Shaun Convey, the main reasons for moving the development side of the DCS business to Eire are financial: grants and tax relief.

DCS certainly did not go for the market. Of his company's main product, the vehicle and equipment distributors package Dealerman, Covey says: "There's not a great market for that in Ireland."

Three types of grant are awarded by IDA to foreign companies setting up subsidiaries, all of which are discretionary. One is an employment grant, payable on each job created, with half the amount retained for the first year to ensure that the job is not just a begging hand. There are also grants for training, and for capital equipment.

The training grants can cover the whole cost of the agreed programme, according to Barry. But the capital equipment grant is more likely to be half or less of the initial investment.

"You have to be able to demonstrate to the Irish government that the venture will be self-financing before these grants are awarded," says Convey, who has taken advantage of all three grants for DCS.

There are two tax advantages: exports are tax free, and corporation tax has a ceiling of 10%, while Irish companies can pay up to 45%. Both of these are strong financial incentives to set up in Ireland, says Barry.

Programming courses where all the students find jobs

THOSE who want to learn about programming have no shortage of opportunities. There are now many summer computer camps imported from the US, and a variety of retraining schemes to drill high technology into the minds of arts graduates. And some universities and polytechnics, not content just with teaching their own students, are embarking on projects to teach computing to children.

Certain colleges recognise that a degree in electronics or computer science is not an automatic passport to employment and are opening up courses tailored to the needs of industry.

Blackpool College of Further Education is doing precisely this, with two new courses, one in microprocessor systems design and development, and one in microelectronic systems maintenance.

Both courses opened last autumn and took 12 students, all of whom have now found jobs in servicing, sales, or research and development.

The 100% job placement is not all that surprising, since only students with a recognised qualification in electronics or computing as well as some industry experience, are admitted.

The systems design course is a thin sandwich of 45 weeks filled with a five-week block in industry. The systems maintenance course lasts for 24 weeks with practical work including the building and testing of logic systems.

The courses are sponsored by the Manpower Services Commission, so industry is effectively offered a free five-week long interview of students who are already qualified.

Another approach to education is taken by the London Micro Centre, which sells the little known Dutch Exidy Sorcerer business microcomputers. LMC decided that its customers wanted more than a complicated manual with their machine. Instead they offer full training in Basic, assembler and business computing in general.

"We have a full-time training manager and courses to take people step by step at an easy gradient," says LMC manager Robin Dunford-Green.

"We have been doing it for our own customers for some time and are now advertising courses for the general public," he adds.

Basic courses consisting of a 20-hour block are offered for £200. But anyone who buys a microcomputer from LMC gets 20 or 30 hours' free training.

Why does LMC sell such an obscure brand of microcomputer? According to Dunford-Green, LMC used to sell Tandys, Apples and others, but found the Sorcerer more reliable with better screen handling facilities.

PUZZLER

AFTER much research, numerologists have determined that the formula

A(BC)(DEF)=G,HIJ

with all ten digits present, has only two possible solutions. One of these is 1 × 26 × 345 = 8,970.

The other solution has A equal to 2. Can you work it out before turning to page 39?

Royal Wedding 'title' team to get £750,000 SERC grant

THE team whose research led to the television sub-titles used in BBC coverage of Wimbledon and the Royal Wedding has won the largest grant yet made to a polytechnic by SERC, the Science and Engineering Research Council.

The grant of £750,000 to the Human Computer Interface Unit of Leicester Polytechnic is also the largest awarded by SERC for research in making computers easier to use.

"We see people, rather than machines as our central concern," says Ernest Edmonds, who leads the unit.

Leicester is one of a group of polytechnics that collaborate with Marconi, the BBC and Unilever in human interface applications. The activities include image processing applications in manufacturing, medical expert systems, and the semi-automatic sub-titling of TV programmes for the deaf.

There is also a computer-aided learning project in which IBM has expressed interest.

The sub-titling system developed at Leicester was first used by the BBC via its Ceefax facility during the inauguration of President Reagan in January 1981. The system converts the spoken words of the commentator into digital form from which sub-titles in the television set are then reconstructed.

Research is still going on in the hope of averting the few blunders that afflicted the sub-titles of the Royal Wedding last year. Occasionally short words were merged to form larger meaningless words.

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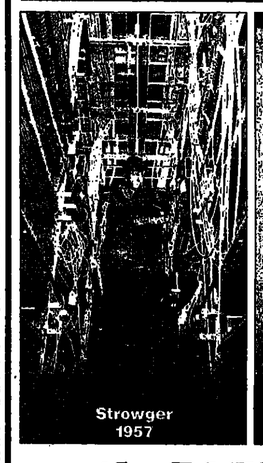

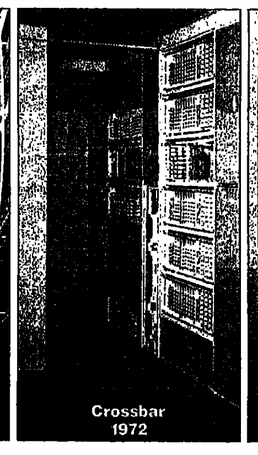

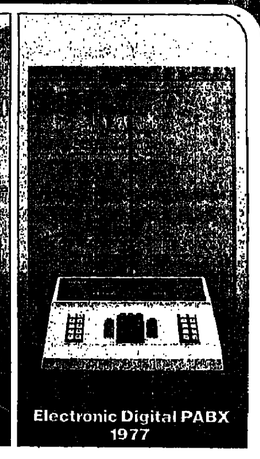

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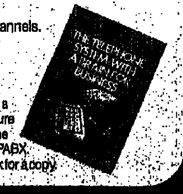

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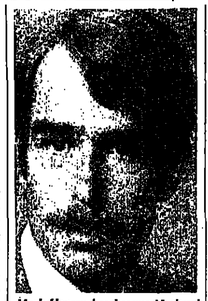
PEOPLE

Finance chief for BT Enterprises

BRITISH Telecom Enterprises the corporation's new competitive arm, has appointed ex-GEC man **Dudley Fielding** as finance director. He is to help form independent operating divisions within the company.

Fielding gained a fellowship to the Institute of Chartered Accountants in 1957. He then spent two years in the RAF, followed by six years in South America as manager of an accounting firm. He returned to the UK to join an engineering group, and after a period running his own consultancy, joined GEC in 1967.

He was involved in the reorganisation of GEC following the mergers in the late Sixties between GEC AEI and English Electric. He also helped establish a major joint venture operation based in the US, to which he was seconded as vice-president, Europe, for two years. His time at GEC was spent in general management and (mainly) as group finance director.



Mark Vonarx has become National sales manager at Micom Systems. During his three and a half years with the company, he has contributed to a tenfold increase in corporate sales. He will co-ordinate sales of data comms products made through the company's UK network of sales reps and distributors.

John Whitney has joined CAD specialist Quest Genesys as sales and marketing director. For the past three years he has been with Compeda, joining as sales manager and becoming commercial manager. As a chartered mechanical engineer, he was previously Turbine sales manager of APE-Allen.

David Miller has joined Whitbread as data architect. He was previously a senior consultant at CACI, specialising in business analysis. At Whitbread he will develop a data architecture to support the development of computerised business systems throughout the company.

■ Barry Jones has been appointed sales executive responsible for bureau and systems sales at Delta Computer Aided Engineering. He was formerly general manager at Shear Machine Tools.

■ Ann Miles has been appointed accounts administrator at CMG Information Services Scotland. She has held administrative posts with the company for six years.

■ Steven Hampton, senior applications engineer at Emulex, has been appointed manager of international marketing support at the company.

■ Andrew Swanston and **Eric Salamon** have been appointed sales directors at Atari International. Swanston, who was previously with W H Smith, is responsible for video games. Salamon, who takes charge of home computers, was formerly brands group manager at Mars Confectionery.

■ Troy Todd has been elected president and chief executive officer at United Telephone System, Florida Group. He has been senior vice-president of United Telephone System for two years.

■ Graham Falconer and **Stephen Foster** have joined Norsk Data as sales executives. Falconer was previously with Burroughs and Plessey and Foster was formerly with Burroughs and IBM. John Anderson, previously with Sperry Univac, joins the OEM sales team. **Derek Avis**, previously with control data and Computer Field Maintenance has been appointed technical support group leader at Norsk.

■ Mike Stewart has been appointed financial director at Datasolve. He was previously the company's finance controller.

■ Peter James, **Terry Cuthbert** and **Arthur Burley** have all joined the sales team at CAD/CAM manufacturer Calma. James is sales manager for architectural, engineer and construction systems. He was formerly sales manager with Davy Autotrol. Cuthbert also joins from Davy Autotrol. He becomes sales executive for mechanical design systems. Burley, formerly with the Computer Aided Design Centre, becomes sales executive for microelectronics products.

■ Laurie Hamilton has been named district sales manager for Northern Los Angeles, Ventura and Santa Barbara Counties at Kennedy. She has been with the company for seven years, most recently as marketing administration manager.

■ Brian Fadil has been appointed UK sales manager at Data Dynamics. He has been with the company for nine years, starting as a sales representative and serving most recently as Northern area sales manager.

■ Peter Maclean and **Derek Southgate** have been appointed to the board at Sherwood Computer Centre. Maclean, who has responsibility for the development of computer systems for motor agents and accountants, was formerly a director of Sherwood Software Services. Southgate, also a former director of SSS takes charge of software development projects involving ICL equipment.

■ Robert Lawrence has been appointed vice-president of North American sales at Priam. He joins the company from Dataproducts, where he held a similiar position.

■ John Gartland has been appointed audio communications executive for internal communications at Philips Business Systems. He was previously with Reliance and Gestetner.

■ John Lloyd has been appointed technical manager of DCC. He joins the company from Software Sciences, where he was a project manager and principal consultant.

The Exhibition reaching people building with microcomputers

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Pitcom co-founder joins NCC

PHILIP VIRGO, who co-founded and was the first external chairman of Pitcom – the Parliamentary Information Technology Committee – has been appointed technology assessment services manager at the National Computing Centre. He will work on the promotion of awareness programmes for financial institutions and civil servants through the NCC's Microsystems Centre.

Virgo was previously government liaison officer for the London branch of the BCS.

His career in the computer industry started in 1968 when he joined Standard Telephones as a trainee programmer. He also worked for ICL.

DIARY

SEPTEMBER 8
OTL Gives Voice to Information Management. Meeting on OTL's Information Management Processor. Institute of Information Scientists WP and computer information systems special interest group. OTL, London. Tel Helen Harris on: 01-229 5069.

SEPTEMBER 14
Expert Systems. Speaker Alex d'Agapeyeff. IDPM West London to Oxford branch. Bell House Hotel, Beaconsfield.

SEPTEMBER 19-24
Industrial digital and microprocessor-based control systems. IEE. Vacation School at Balliol College, Oxford. Details from IEE, 01-240 1871.

SEPTEMBER 23-24
Information systems – analysis and design working party. BCS. Open University, Milton Keynes. Details Guy Fitzgerald, 01-854 2030, ext 377.

OCTOBER 5
The impact of the new technology on management. Speaker David Fairbairn, director of NCC. IDPM Scottish branch-British Institute of Management. Merchants House, 7 West George Street, Glasgow.

OCTOBER 6
Impact of new technology on management – challenges and implications of IT for the workplace. Speaker Ted Cluff, secretary-general IDPM. IDPM Scottish branch – Institute of Management. Lecture Theatre, College of Commerce, Aberdeen.

OCTOBER 12
Visit to Thames Valley Police Computer Centre. IDPM West London to Oxford branch. Thames Valley Police Computing Centre, Kidlington, Oxford.

JANUARY 5-6
Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on: (051) 645 2000 ext 8611.

CONFERENCES

■ THE industrial application of lasers and fibre optics is the subject of an international conference to be held at London's Mount Royal Hotel on November 11-12. The conference, organised by **Automation, Eyre and Spottiswode Publications**, aims to provide a forum for the exchange of ideas and experience between suppliers and users of opto-electronic systems. It will be a meeting place for systems engineers, production managers and development engineers from various manufacturing industries. Papers cover such subjects as optical communications, lasers in production, monomode transmission, sensing, inspection, measurement and control and interpherometry. Details from the organisers at Swan House, 32 Swan Court, Leatherhead, Surrey KT22 8AH. Tel: (0372) 379666.

■ A ONE-DAY meeting on the life and work of computer pioneer Charles Babbage is to be held at the **National Physical Laboratory** in Teddington, Middlesex, on December 10. Speakers include Dr R. Hyman, who has written a book on Babbage and whose paper is on Charles Babbage and the Applications of Science. Dr J. Dubbey will speak on the subject of his book. The Mathematical Work of Charles Babbage. Other papers are Babbage's programs for the Analytical Engine and The Heritage of Babbage in New Zealand and Australia. Registration fee has not been fixed, but the organisers are hoping to keep it low. Details and registration forms are available from RS Watson, Division of Information Technology and Computing, National Physical Laboratory, Teddington, Middlesex TW11 0LW.

PRODUCTS – 1

Electrical standards directory

A DIRECTORY, *Electrical Standards in World Trade*, is aimed at helping all involved in the manufacture, marketing and purchasing of electrical equipment to understand better the relationship of electrical standards at the international, regional and national levels.

The directory will be published in October by IPC Business Press in association with the International Electrochemical Commission (IEC), the authority for world standards in electrical and electronic engineering.

It will comprise a perspective on how world standards facilitate international trade; a review of regional standardisation in Western Europe, Eastern Europe and the Pacific area; a detailed profile of national standardisation in the main exporting countries; a summary of the main standards and approval marks imposed by governments and other authorities in the 43 member countries of the IEC which regulate the manufacture, sale and use of electrical goods and equipment; and an insight into future trends in electrical standardisation.

IEC will be the sole distributor of the directory. Copies cost 70 Swiss francs each.

IEC Central Office (CW), 1-3 Rue de Varembe, Geneva 20. Copies are also available from the IEC National Committee.

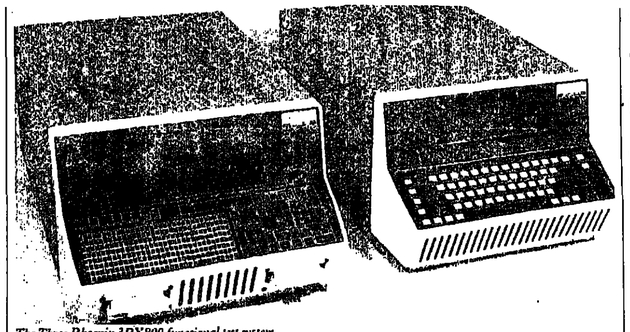
Lightweight fire safe

A LIGHTWEIGHT, fire-resistant safe available from Parasol was developed specifically to protect floppy discs against fire damage. The new Mediaguard safe has been independently tested, providing successful protection to BS 476 part 8 at a fraction of the cost of conventional equipment, according to Parasol.

The use of the new lightweight insulating material in the Mediaguard safe means that the new safe will accommodate up to 80 5¼-inch or 30 eight-inch boxed discs all in a portable unit weighing 20kg. The use of this material provides full thermal protection, together with protection against external magnetic fields.

Geoff Gant, director of Parasol, says: "If you're spending thousands of pounds on a computer or word processor, it follows that the data must be pretty valuable too, so it makes sense to protect it. Mediaguard not only provides this protection, but does so at a fraction of the cost of other fire safes on the market."

Parasol (CW), 63 High Street, Crawley, Sussex, RH10 1BQ. Tel: (0293) 513129.



The Three Phoenix 3PX800 functional test system.

High-speed tester tracks faults

A HIGH-SPEED functional test system with computer-directed guided probe is available from the Three Phoenix Company.

Capable of pass/fail testing and exhaustive diagnostics, the 3PX800 features sophisticated pin electronics for exercising logic boards and microprocessor assemblies at native operating speeds so that latent dynamic faults which were formerly detectable only at the system level can be diagnosed effectively, so increasing first-time system yields and enhancing associated throughput.

A cost-effective guided probe system provides conventional probe messages to direct the operator in probing board nodes, while also displaying a board map of the unit-under-test (UUT). This detailed board map, which is created by the test programmer, allows the operator to locate faults rapidly in conjunction with probe messages. Guided-probe system software has been developed to execute from PROM, so that no time-consuming media-loading sequences are required.

Three Phoenix Company (CW), 21639 N. 14th Avenue, Phoenix, AZ 85027. Tel: 0101-602-242-6300.

The Protector tape cartridge cleaner from Graham UK.

Self-load tape cleaner

TO DEAL with the problem of tape contamination in self-load magnetic tape cartridges, Graham UK, the magnetic media specialist, has launched The Protector.

When self-load cartridges were introduced, they offered many operational advantages and conveniences, but little in the way of tape protection, even in their closed state.

In addition, constant rotation and vibration of the reel within the cartridge has introduced a new problem – "plastic chaff" – a fine powder which contaminates the cartridge and eventually the tape.

The Protector is designed to remove over 98% of error causing debris and chaff to allow more efficient performance of the mainframe. This alone will quickly repay the initial outlay for the equipment, says Graham.

The Protector is available on a rental basis for installations with a small-to-medium sized autoload tape library.

Graham UK (CW), Unit 5, The Heston Centre, International Avenue, Hounslow, Middlesex TW5 9NJ. Tel: 01-561 5814.

Xylogics boosts disc storage for DEC users

XYLOGICS has launched the Model 650 controller, which, says the company, offers up to 4,800 Mbytes of disc storage directly bootable from any DEC VAX 11/730, 11/750 or 11/780 computer system when used with the Xylogics I/O Expander Card.

The Xylogics controller runs on all DEC Unibus machines including the DEC VAX 11/780, 11/750 and 11/730 emulating RM02/3 and RK06/7 disc systems. The basic 650 controller links up to four drives with SMD interfaces, providing a total of 2,400 Mbytes. By adding the Xylogics I/O Expander Card, this capacity can be doubled to a total of 4,800 Mbytes.

The Xylogics 650 utilises a 16-bit bipolar bit slice microprocessor to provide operating and diagnostic commands. All current DEC VAX software can be used. A major feature of the controller is the Autoformatter which gives users the ability to format discs without CPU intervention.

The controller offers inbuilt error detection and correction systems to save CPU time, which would otherwise be used to carry out error detection and correction.

The 650 consists of a single multi-layer hex width board capable of supporting up to four 675 Mbyte drives, and a quad width expansion board which will support up to four additional drives if required. The processor board can be plugged into any available hex width SPC slot in the host computer.

The Xylogics 650 can also emulate other disc drives, mapping them to look like the 14 and 28 Mbytes of DEC RK06 and DEC RK07 disc systems. This gives the system builder greater flexibility in his choice of disc drive, says Xylogics.

Xylogics International (CW), 46-48 High Street, Slough, SL1 1EN. Tel: (0753) 78921.

The Megastor III floppy disc unit.

Vlasak offers Apple memory boost

A HIGH-CAPACITY floppy disc unit for the Apple III computer has been announced by Vlasak Computer Systems.

With a 1.1 Mbyte capacity, the Megastor III fills the gap between Apple's original products: two floppy disc drives with 286K total memory, or the Apple Profile with a five Mbyte capacity.

The Megastor III is priced at £1,970 per unit, and Vlasak claims that the device is 33% more cost effective than the two Apple III floppies. It uses technology tried and proven in field use with Vlasak's Megastor II during the past three years.

Easy back-up of data at no extra cost is offered with Megastor III.

Vlasak says the benefits of increased storage capacity can be appreciated by studying the following capacities of the Vlasak-Orbit Integrated Businesss System when used with Megastor III: Sales ledger – 1,000 accounts and 3,500 transactions; Purchase ledger – 1,000 accounts and 3,500 transactions; General ledger – 500 analysis codes and 7,000 transactions; Stock recording – 2,500 lines.

Vlasak Computer Systems (CW), 8 Stuart Road, High Wycombe, Bucks HP13 6AG. Tel: (0494) 448633.

Dedicated stock control system

A PURPOSE-BUILT stock control system based on a microcomputer has been launched by Kardex Systems.

Called Electronic Kardex, the system has been "designed from the very beginning as a dedicated stock control system as its sole and specific purpose," according to the company.

Specialisation for this role is most evident in the central processing unit of Electronic Kardex which incorporates a triple floppy disc drive. One disc holds program instructions, the second historical data, and the third continuously updated information on the current situation.

Peripherals for data entry, monitoring and data output are keyboard, visual display screen and printer. The visual display has a 12-inch screen of 80 columns by 24 lines (plus 25th status line). The keyboard, detached for ergonomic reasons, has a full complement of alphanumeric, numeric and function keys. Choice of printer is left to the customer to match individual needs in different stock control applications.

Software for Electronic Kardex is fully developed and tested, says the company. The system runs under the CP/M operating system.

Kardex Systems (CW), 2 Dyers Buildings, London EC1N 2JT. Tel: 01-405 3434.

Voice recognition for the designer

THE TIME required for computer-aided design (CAD) tasks can be cut by half with a voice recognition system developed by Interstate Electronics, according to Kode, which markets the device in the UK.

The Voice Recognition Module (VRM) is used in conjunction with a graphics tablet and electronic pen to give the designer a much easier environment in which to interface to the computer. The VRM is a single printed circuit board that contains all the functions necessary to recognise spoken words and convert them into the digital language of computers.

After viewing a layout and deciding on changes or additions, the designer uses the electronic pen to enter them on the table. The motion of the pen moves a corresponding cursor on the display unit. Approximately 40 design commands such as "Get", "Stretch", "Move", "Delete" are spoken in natural language into the Voice Recognition Module and relayed to the controlling computer to implement changes.

The voice system replaces the slower, more error-prone method of entering design commands by keyboards. Kode claims that a two-fold increase in productivity is made possible because the designer can input commands directly without using his hands to punch keys and without moving his eyes from the screen.

The VRM can recognise up to 100 words at a time with nearly 100% accuracy, requiring only that the operator "trains" the system before using it by speaking each word of the vocabulary several times to produce a template which is permanently stored in the computer. Templates for many users can be kept available for further use.

Kode says that chip designers including National Semiconductor and Motorola are already using the VRM to assist in developing large scale integrated circuits.

The usual graphics system configuration consists of a controlling computer, three or four colour graphics design stations and a plotter that produces a hard copy of the layout. The VRM can be added to each of the design stations to facilitate entry of design commands to the computer.

Kode (CW), Calne, Wiltshire. Tel: (0249) 813771.

The Easytrak trackball from TDS.

Advanced trackball for general purpose use

THE Easytrak trackball, launched by Terminal Display Systems, is claimed by the company to be the first comprehensive, practical trackball for general purpose use. Previously available trackball devices were restricted in application due either to accuracy or functional limitations, says TDS.

Built at the TDS factory in Blackburn, Easytrak is microprocessor-based and uses optical encoding techniques for high accuracy. The device outputs digital data streams from its RS232 (or 8-bit parallel) interface, enabling the user to connect direct to the host computer or to a graphics display controller, as required, making the product equally attractive to end users and graphic system vendors. Data format is user selectable and includes full Summagraphics Bit Pad compatibility, for simple integration to many existing systems.

Easytrak is a self-contained unit, incorporating co-ordinate display, function keys and ball unit with interfaces and selection switches at the rear. The signed, four-digit display shows the co-ordinates of the currently selected cursor. Easytrak has four independent cursor registers, and both absolute and relative addressing is supported.

Terminal Display Systems (CW), Phillips Road, Whitebirk Estate, Blackburn, Lancashire, BB1 5TH. Tel: (0254) 676921.

Complete check on printing

AN extensive printer spooler software package, now available for use with the S/09 multi-tasking, multi-user business computer runs on the Uniflex operating system.

In all, some 16 programs have been written and these, with powerful accounting features, allow close control of printing to be established, say the manufacturers.

The package, which is supplied with full documentation in the form of a 64-page manual and free maintenance for one year, enables a complete check to be maintained on who printed what, and when.

Instructions cover a variety of operational requirements. For example, the command can be given to stop printing immediately and de-activate the printer program, while another command can instruct the computer to stop printing the current file and return it to the queue.

Other features include the capability to terminate the printing of the current file and look for another file to print; to inform the printer program which type of form is currently on the printer; to resume printing after the printer program has paused and to stop searching for files when the current file being printed is finished.

Southwest Technical Products (Computers) Co. (CW), 12 Tresham Road, Orton Southgate, Peterborough, PE2 0SG. Telephone: 0733 234433.

The Floppy Manager from Inmac

Disc storage system offers fast access

A VERSATILE floppy disc storage system called Floppy Manager has been introduced by Inmac, the mini and microcomputer cable, supplies and accessory specialist.

Storing up to ten 5¼ or 8 inch floppy discs, Floppy Manager consists of modular containers which can stack and latch together to form a dust-free storage system. Each features a novel access tray which automatically flips forward on opening to allow easy retrieval without bending or stressing the disc, and rotates 90 degrees to allow the Manager to be used in a desk drawer.

The modules can be stacked horizontally or vertically to fit the available workspace whether it be bookcase style, drawer filing or vertical stacks. It can grow and expand by adding new modules as required.

Costing £6.10 for 5¼in modules and £6.50 for 8in modules (each holding 10 diskettes), Floppy Manager is part of a wide range of computer accessories, supplies and cables available through Inmac's new free 56 page catalogue.

Inmac UK (CW), 18 Goddard Road, Astmoor Industrial Estate, Runcorn, Cheshire, WA7 1QF. Telephone Runcorn (09285).

Electronic switching shredder

AN electronic switching shredder is available from Business Aids. The new 1982 Scimitar Super will automatically switch itself into reverse if it is overloaded or fed with unsuitable material; this procedure clears the jam, and the machine then switches itself off.

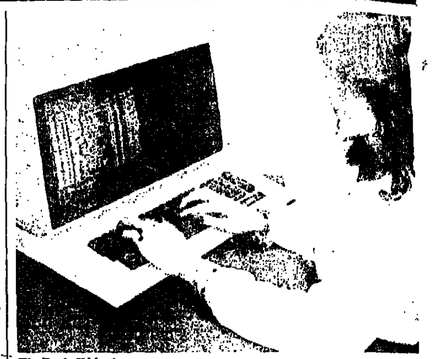
Although it is powered by a heavy duty 1.2 hp motor, the belt-driven Scimitar is claimed to be quieter than most shredders.

It is faster and handles a wider range of materials than previous models including all types of continuous stationery, masters and litho plates and outdated addressing plates. It will digest up to thirty or more sheets of A4 paper at a time, and plans and drawings even of A0 size can be fed into the machine.

The Scimitar Super has been enclosed on a console and the shredded waste is collected in an internal plastic sack ready for easy disposal. This makes the machine much easier to move on its trolley castors from office to office. It is also more compact and therefore more space saving than those models with large open mesh bins placed under the shredder.

While designed primarily as a shredder for the larger office, the Scimitar Super is still quite quiet and mobile enough to be moved to the computer room or the board room to take care of that extra confidential shredding job.

Business Aids (CW), 3 Whitby Avenue, Park Royal, London NW10 7SQ. Tel: 01-965 9821.



The Eagle IV business system.

Hard disc additions to Eagle range

TWO microcomputers with built-in hard discs have been added to the Eagle Business System range by Mediatech. They are Eagle IV and Eagle V. Formatted disc storage capacity is 8.284 Mbytes and 15.784 Mbytes respectively.

This can be expanded with additional hard discs which can be plugged directly into the internal controller or to the system interface. The internal Winchester controllers in these systems have the ability to drive two Winchester discs and have 11-bit error correction capability.

To provide end users with a friendly interface, Eagles are supplied with a menu program that is automatically loaded on power-up.

In addition to the hardware, each system is supplied with at least £600 worth of software. This includes Basic; Ultracale spreadsheet program; CP/M operating system and AVL Spell Binder word processor with mail merge and mail list management. End user prices start at £4,195.

Alternatively, the systems can be supplied with the above software plus a seven-ledger integrated accounting program, Accounting Plus, that covers sales order processing, sales ledger, nominal ledger, purchase order processing, bought ledger, stock control and point of sale. The end user prices for this alternative configuration start at £5,400 which includes over £3,100 worth of software.

Mediatech (CW), Business Systems Division, Woodside Place, Alperton, Wembley, Middlesex HA0 1XA. Telephone: 01-903 4373.

'Colour copies of any image on the screen'

THE ACT-1 Colour Copier now introduced into the UK by Intertrade Scientific, of High Wycombe, is said to be a significant advance in producing colour copies of any image displayed on the screen, when plugged into a computer colour graphics system.

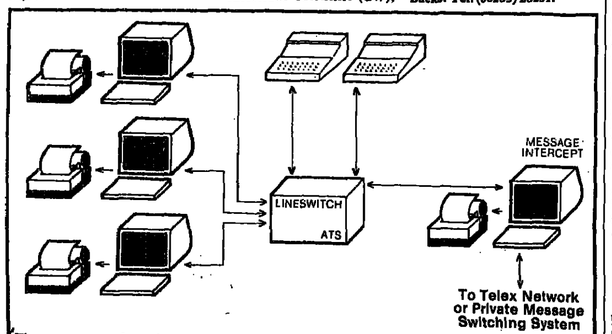
"Ink jet printing technology together with microprocessor control" says managing director Tony Fletcher, "provide the ideal combination of high quality image reproduction, fast copying speed, reliable operation and low cost per copy – and all for less than £6,000".

The ACT-1 copies business charts and graphs, takes snapshots of real time display information, reproduces complex multi-colour raster images, and can produce training aids.

Under microprocessor control, tiny droplets of yellow, cyan and magenta inks are sprayed from the print head as it passes across the copy paper. The ACT-1 prints 85 dots per inch vertically and up to 140 dots per inch horizontally. It reproduces up to 125 colour shades.

Intertrade Scientific (CW), Mill House, Boundary Road, Loudwater, High Wycombe, Bucks. Tel: (06285) 28231.

The ACT-1 Colour Copier.



The message route selector that enables intelligent typewriter terminals or VDUs to communicate with each other and the telex network.

Low-cost data transfer system

A LOW-COST message route selector that enables intelligent typewriter terminals or VDUs to communicate with each other and the telex network has been launched by ATS (Communications) of Haywards Heath, Sussex.

Called the ATS Lineswitch, it allows messages to be sent point to point between terminals or broadcast to any number of terminals on a system.

The Lineswitch can concentrate information from a number of terminals into a central point, for example a telex room or data processing point.

It can also accept messages from any incoming source and redistribute them to other branches or departments as required.

Aimed at both the end user and OEM markets, the ATS Lineswitch is the latest in the company's range of microprocessor-based units designed for variable configuration. Like other ATS products it can be adapted to a company's individual needs. It is user friendly and prompts the operator, who needs no special training.

Terminals work in either Ascii or Baudot, in the range 50 to 9,600 baud.

Automation and Technical Services Group of Companies, Bridge Road, Haywards Heath, Sussex RH16 1UB Telephone: (0444) 414911.

Automatic or software control

A NEW ECMA 34 digital cassette terminal with full RS232C interface is announced by Cristie Electronics of Stroud, Gloucestershire.

The Cristie CS6 cassette terminal, based on the TEAC MT2 cassette deck, has two modes of operation: automatic and software controlled.

In software controlled mode the CS6 responds to software control commands and operates character string searches and tape mark searches to give a full file oriented system. The CS6 also has a 16-character buffer for external commands which allows a whole sequence of actions to be carried out without the need to poll for status.

Other features include a continuous data throughput of over 960 characters per second; a switch selectable choice of five handshakes on read and two on writing and full automatic error detection and correction on both read and write.

Cristie Electronics (CW), Rodney House, Church Street, Stroud, Glos, GL5 1JL. Tel: (04536) 79821

Privacy device

HIGH-SPEED confidential negotiations are possible with the new Portable Telex privacy device introduced by specialist data security company Marck & Hollander.

Developed as part of a programme to combat international funds transfer fraud, the device provides complete security for telex communications and is available in a compact portable carrying case.

No installation work is required, say the manufacturers, and the system works with existing telex equipment to create "scrambled" telex tapes ready for transmission on the public telex network.

Marck & Hollander (CW), Alliance House, 12a Baldwin Street, Bristol BS1 1RZ. Tel (0272) 277208

Versatec multi-media electrostatic plotting.

Multi-media electrostatic plotting on entire range

VERSATEC has announced a development that enables the company's entire range of electrostatic printer plotters to produce drawings on transparent and matte finish polyester film in addition to its standard opaque and translucent drawing paper. The new multi-media printer plotters incorporate mechanical improvements to produce what is claimed to be consistently high quality output.

The new films are true, four-mil polyester-base media designed specifically for high-speed electrostatic plotting. A user can use opaque or translucent paper for economical "quick look" preliminary drawings, then switch to durable, dimensionally stable clear film, or matte finish film providing an ideal surface for written annotations to the drawings, for overlays, duplicating and final plot production.

Major applications include computer aided diesign, seismic work, mapping and business graphics.

Mechanical improvements include a wide vacuum channel to remove excess toner.

Toner applicator fountain and turbulent flow toner system maintain toner contact with film and paper to produce even, solid black areas, and an electrically biased backrest reduces toner signature during mid-plot pauses, improving stop/start and remote output quality. Optical sensors measure toner concentration for automatic maintenance of image quality.

Versatec (CW), 2710 Lakeside Road, Newbury, Berks. Tel (0635) 42421.

Water is a cool winner over air in the computer suite

Air conditioning can give more headaches than water-cooling, says Derek Siveter

A GREAT deal of nonsense has been talked over recent months about the disadvantages of water-cooling for computer suites. Much publicity has been given to the fact that "plumbing" for an IBM 3033 or 3081 involves major water services at high cost and disruption when piping the computer centre to the water mains.

In fact, the reverse is true. Far from being more expensive, water-cooling can be a lot simpler to install and run than the under-floor air-cooled systems which are mandatory for the plug-compatible manufacturers' equipment.

It is certainly true that data processing managers should select whatever computers and peripherals meet their requirements most exactly without considering the means of cooling, because whether air or water is used, providing it is properly engineered, either will do the job effectively both in practical and economical terms.

This may be a sweeping statement, but it is certainly true that data processing managers should select whatever computers and peripherals meet their requirements most exactly without considering the means of cooling, because whether air or water is used, providing it is properly engineered, either will do the job effectively both in practical and economical terms.

First it should be remembered that water, by its very nature, has four times the heat removal properties of air, and that one pound of air has a volume of 13.5 cuft. It thus becomes obvious that water is a far more efficient heat transfer medium and far less bulky.

> **'Water cooling is very much alive and should not be written off in jocular cartoons of plumbers wielding spanners'**

This is why the variety of packaged coolant supply units developed to meet the requirements of IBM machines are more compact than air-cooled units of similar capacities.

Another advantage of these machines is that they have been designed with all components duplicated for 100% standby. The only effective way to give 100% standby with an air conditioning system is to provide two completely independent air conditioning systems. Thus water-cooling units take up much less floor space and can be installed more cheaply than the equivalent air-cooled system required to serve a plug compatible machine.

The "number cruncher" supercomputers as manufactured by Control Data and Cray have resorted to direct refrigerant cooling, which is even more effective than water.

Even without this obvious advantage, there is little doubt that when it comes to expansion of existing computer facilities, water-cooling must take the honours in cost-effectiveness. Packaged coolant supply units (CSU) are as easy to install as air-cooled units and in some cases can be very much easier to install, especially where an existing computer room with a ceiling supply air conditioning system – the preferred method of computer air conditioning a decade or so ago in this country – is concerned.

This type of ceiling supply system is now totally unacceptable for air cooling the large plug-compatible computers.

Perhaps it would be simplest to take the worst examples that could be encountered for installing both water-cooling and air-cooling into existing computer suites.

IBM water-cooled systems such as the 3033 or 3081 require the installation of a packaged coolant supply unit which can be positioned adjacent to the IBM coolant distribution unit and power distribution unit (CDU/PDU) or remotely sited in a mechanical services plant room. The CSU is then simply coupled to the CDU/PDU with reinforced water hoses which are just plugged to the water connectors supplied by IBM.

Heat rejection plant and refrigeration pipework would be installed in exactly the same way as for the equivalent air conditioning equipment, and the total package, if installed within the computer room, would take up less than 15 sqft of valuable floor area and give 100% standby.

The closed loop water system would require a small bore water feed for topping up and this would be of a similar size to that needed by the humidifier supply within the air conditioning units.

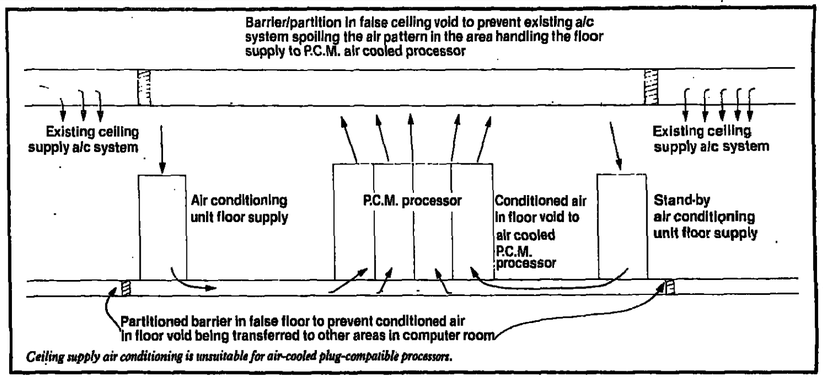
Water leaks can be detected by a Liqui-Tect solid state water sensor positioned beneath the floor and relayed to an alarm panel on the packaged CSU.

Let us now consider the refurbishment of an existing computer suite with air-cooled equipment. The computer room is presently served by a ceiling supply air conditioning system but the plug-compatible manufacturers insist on positive air flow from a false floor to prevent the machines overheating. Thus the existing air conditioning system is completely incompatible with the requirements for the existing air conditioning system.

At worst, but by no means unusually, this means completely remodelling the air conditioning system for floor supply – certainly disruptive and very costly. A less satisfactory solution is to partition off a small section of the false floor, possibly raising it at the same time to allow adequate air movement and then install air-cooled equipment, allowing enough capacity to give standby to supply air into the segregated section of the false floor.

It can easily be seen that the amount of builder's work involved in blanking off areas of ventilating ceiling and installing baffles within the false floor before starting the installation of the air-cooled equipment may make the installation of a CSU look like child's play.

Overseas Containers Ltd. was running IBM 370/158 machines in an environment with a ceiling supply air-conditioning system. It replaced its IBM machines with NAS central processors. Before it could install the NAS machines an area of the existing computer room floor had to be remodelled by putting partitions within the false floor and installing two air conditioning units, one to serve the heat load, the other acting as standby should the first fail or be switched off for routine maintenance.



Ceiling supply air conditioning is unsuitable for air-cooled plug-compatible processors.

As a area in the ceiling where the existing air conditioning system operated also had to be blanked off to stop the two air flows mixing in the same area.

This whole operation involved a great deal of planning and the changeover operation was extremely well co-ordinated and was carried out very smoothly. The reasons for selecting the NAS machine were concerned with price, performance and delivery. From an environmental services viewpoint it would have been no more difficult to supply water-cooling for, say, an IBM 3081.

At a site in South London where an Amdahl computer was installed, the user had to raise an area of false floor which was too low to allow adequate floor supply air conditioning and meet all the cabling requirements.

One of the existing air conditioning units had to be converted from upflow to Flor Flow air pattern. At a later date they were having problems in servicing the remodelled air conditioning unit and are now installing a second unit to act as standby so they can switch off one air conditioning unit for maintenance without having to power down the processor.

One must bear in mind that it is not a case of air versus water cooling, but that both have a place in today's hi-tech age. Water cooling is, indeed, very much alive and should not be written off in jocular cartoons of plumbers wielding spanners. It is the obvious choice for extensive remodelling work and a real contender for any new computer installation.

Derek Siveter is sales director for Air Sales, distributors of computer room cooling equipment.

CITY HALL, GLASGOW
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SOFTWARE MONTH

Office systems put users in a panic

"Most people buy a word processor here, a package there, making it up as they go along."

TALKING about office system software is an odd thing to do in that one of the basic concepts of an office system is that the software should be invisible – at least from the user's point of view. There is not much agreement about what an office system actually is, but most people agree that it is a computer system for a new kind of user – a user who is interested only in what the machines produce, and not at all in how they produce it.

The only point at which the buyer of an office system might have to think about software is at the time of purchase. Of course it must do the job the buyer has in mind – whether it be word processing, electronic mail, forecasting and modelling, or just producing facts from a database. But these things should be recognisable to the layman. If the software does not produce exactly the results the buyer wants in exactly the right format, then it is bad software.

It is only likely to get technical if the buyer either has an existing computer set-up or plans to expand the office system some time in the future. It is here that all the simple certainties can turn into a can of worms.

The two typical problem areas usually look something like this. A data processing DP manager has an ageing but dependable mainframe computer with four or five years life in it – an ICL 2900 for example. ICL sells a word processor, which unfortunately does not hook up to the 2900. The company has also just announced a micro which does not hook up to much at all. There is an ICL financial modelling package called Prosper available, but it costs thousands of pounds. In Tottenham Court Road the dealers are selling a micro modelling package that is just as powerful for a couple of hundred.

The DP manager could hang around for a couple of years until all these things are sorted out, but in the meantime managers and accountants are grumbling about fuddy-duddy DP departments, and illicit micros are sprouting like corn in every tiny subdivision.

The second problem is probably one for the smaller company with no computer at all. The accountant hears that a micro capable of forecasting is available for about £2,000, including software. Just as he is handing over the cash, the superior youth behind the counter asks him if he has thought about upward compatibility. Upward what?

Can he *build* on the micro? the superior youth explains. Will it fit into future networking standards? Could it be used to access a central database? Does it have an operating system adopted by one of the new big manufacturers for other microcomputers? Is the manufacturer big enough and solid enough to be around in a couple of years' time? The accountant is likely to panic, and go back to the trusty old biro.

All this uncertainty about standards and compatibility is one reason office systems, despite all the publicity they have attracted, have been so slow to take off. Experienced DP managers, accustomed to the comforting embrace of a single supplier, are bound to feel uncertain about buying a micro from someone called Dickie Data of Dorking. Inexperienced users on the other hand get put off by the apparent morass of conflicting views on what sort of software and equipment is likely to be around longer than next Thursday.

A lot of this uncertainty can be blamed squarely on the established computer manufacters. The intensive secrecy over computer architectures (see IBM v Fujitsu) and the refusal to develop any sort of high level communications standard between competing makes of mainframe is a deliberate marketing policy designed to maintain high profits margins and to lock users into dependency on a single family of products.

Of course there are office systems with fully integrated hardware and software. IBM has masses of equipment that will work happily together. Philips, Xerox, Wang, Olivetti, Plessey, OTL and so forth all have integrated systems which do word processing, data processing, electronic mail, management information and everything else.

The only problem is that they cost a fortune. A modest Prime system costs for example over £100,000 which is another major reason why office systems are slow to catch on.

If you are going to spend £100,000 on a brand new system, you have to justify it to an accountant. It is relatively easy to justify a big mainframe for data processing. "Look, it does all the invoicing that used to take 20 clerks 10 days a month." But when you talk about electronic mail or management databases it becomes more nebulous.

Most people, because they already have a computer, because they do not have enough money or knowledge, or because companies are messy, intractable organisations, will take a more messy approach.

They will buy a word processor here, a private viewdata package there, making it up as they go along, dealing with compatibility problems as they arise and hoping not to make too much of a pig's ear of it in the process.

Martyn Harris

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● *Software month is edited by Claire Gooding.*

Viewdata has not enjoyed much commercial success so far. But British Telecom is revamping the whole system

Viewdata – an ingenious idea that didn't sell

AMONG THE main selling points of the integrated electronic office system is the ability to provide "management information", allowing the manager to access from a desk-top terminal the information held on large company computer systems in a more condensed and easily understood form. This might include pargraphs of sales revenue, profit, and stock levels.

One management information technique that has been developed – albeit not very successfully – is viewdata (videotex).

Viewdata started off as an ingenious marketing ploy by the telecommunications division of the UK Post Office – now British Telecom – to derive more revenue from the telephone system during off-peak hours. Domestic TV sets would be hooked up to domestic telephones which in turn could be connected to central computers containing all sorts of useful information. The result in practice has often been lots of useless information.

Lack of control over information providers by British Telecom and the cost of phone time meant the system never sold well to domestic users, and was only slightly better received by business users. British Telecom is now revamping the whole system with an eye firmly on the business market. Closed User Groups – in effect private viewdata networks within the public system – are being expanded and cost of page rental is being slashed from £2,500 to £250 a year.

BT, is also promoting a system called Gateway, developed for the West German Bundespost by Aregon International, which allows users to access directly the computers of private information providers without routeing everything through the BT computers.

The early publicity about viewdata attracted the attention of private computer vendors, and dedicated viewdata systems began to appear in the late 1970s.

They failed because a viewdata system is in effect a simplified database structure, a screen format and a communications protocol. Its only real advantage over an ordinary database is that it is simpler to use, being accessed by menu and page number, and that the screens look more attractive. However, it is slower to use, the methods of access are cruder – the user cannot search by keywords, for example – and the screens hold only small amounts of information.

The problem is one of cost justification. If the system cannot do more than provide pretty pictures for executives, it is extremely difficult to explain to the accountant.

Another problem is the cost of running and maintaining the database. Because the database for the viewdata system contains the same information as the user's main computer database in a condensed format, the user must enter and edit the same information.

Experienced computer users are unlikely to adopt viewdata until it is a lot cheaper and they are able to integrate it with existing systems. Even then they may shy away from it. Fred Perkins, UK boss of the giant IP Sharp bureau, which is currently developing a new stock exchange information system with the *Financial Times*, has deliberately avoided viewdata.

"I think it is an insult to intelligent managers to assume they can't understand a straightforward computer print-out," he says.

Less experienced users are [illegible] likely to adopt viewdata [illegible] until it is a great deal [illegible]. At present it costs about [illegible] set up a modest system.

Martyn Harris

British Telecom now has its eye firmly on the business market for viewdata.

SOFTWARE MONTH

Without a standard, local area network solution is still a dream

Citibank had to make its network serve the needs of foreign exchange dealers.

THE prospective user of office systems networks should forget about mainframe teleprocessing software. That has been well assimilated in the data processing structures of banks and building societies for years, but is too hefty to be defined under an office systems tag. Linking three or four micro terminals together and sharing their resources may also not meet his needs effectively. He should concentrate instead on the local area network, although the effective networking of all computer-based devices within one building is still regarded by many observers as a dream.

The realisation of this dream depends on standard software for an integrated set of standard problems. This in turn depends on a structuring of office routines which are as diverse as the organisations which offices serve. Vendors of local area networks will have to identify specific office procedures. Then they will have to automate with the precision of a Swiss watchmaker.

The illusion, the big solution, will have information available through a common plug, several plugs, hundreds and thousands of plugs. No more departmental empire builders with their discrete systems wasting information which should be the currency of the entire organisation. No more incompatible hardware and complicated communications protocols. And no more painful software writing either. In this version of paradise, there is a software package for every problem.

The reality is different. Every mainframe and mini manufacturer has a "shared logic" system with multi-screened hardware and multi-function software ready to slot into future offices. Their own kind of screens and their own kind of functions. Look at their software and you will end up looking at a hardware specification.

The local area network dream demands greater commonality and Xerox has gone furthest in giving it substance with Ethernet. Ethernet is a standard for linking disparate terminals over a coaxial cable. Xerox has made a candid bid to establish a de facto standard and with it a body of standard software from a host of sources.

Another version of the local area network reality is exemplified by a British company called Zynar which, ironically, has financial links with Xerox. Zynar's idea is simplicity itself. It buys batches of Apple microcomputers and provides the cabling and the know-how to link them together.

Citibank, a Zynar user, employs a team of financial software specialists who had to make the network serve the needs of foreign exchange dealers.

Moral: specialised and large scale organisational demands need specialised software.

Until a widely accepted standard emerges there will not be much to say to the office system user about local area network software.

Paul Fisher

It's worth buying a micro just for financial modelling

THE MARRIAGE of financial modelling software and micros might have been made in heaven – this single application has made software for micros a respectable proposition.

Visicalc, the most popular modelling package, was written in 1978 and costs £125. Steve Jobs, one of the founders of Apple Computer, is happy with the estimate that it accounts for 25% of his sales, which has led him to remark that the micro market has become "software driven".

Financial modelling can be thought of as providing a dynamic on-screen spread sheet to show how a change in one variable will affect other variables. Thus the user can ask a number of "What if?" questions. For example, "What If VAT dropped to 10%? How would that affect my dividends? Could I remain profitable and meet the 12½% wage claim by my drivers?"

The micro modelling packages – including What If, Finplan, Budpack and Micro Modeller – are ideal for low-cost computers because they do not use much data while handling a lot of calculations. Thus they are quite different from normal data processing applications which chew up the data but use only simple mathematical procedures.

Modelling packages are also ideal for personal micros because you can interact with the program immediately. Ask one set of "What If?" questions and dozens more will be spawned.

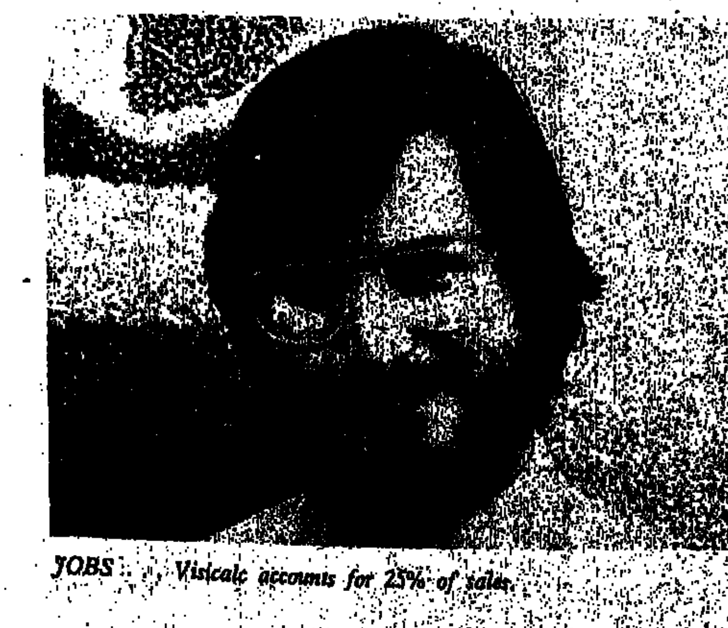
Financial modelling packages are easy to use, and of immediate value. It is worth installing office micros simply to handle financial modelling. Grand ideas of "integration" and "upwards compatibility" need not be seriously considered. Should the modelling tasks become too complex to be handled by the manager's or the accountant's personal micros there may be an argument for more power. A package like Visicalc is not able to draw numbers out of the company's database, nor can it dump altered numbers back on file when it has finished them. Such applications are not yet suitable for local micro systems.

There are, however, minicomputer and mainframe modelling packages available, the most widely used in the UK being FCS from EPS Consultants. This runs on computers from IBM, Honeywell, Burroughs, Prime, NCR ICL, Control Data, Digital and Data General and costs between £10,000 and £20,000. Programs like FCS are extremely complex, but the principle behind them is the same as that of Visicalc.

Financial modelling is in essence the same application that early computers were built for when they were set to calculating missile trajectories. Deciding what will happen in the future from what happened in the past is one way of putting it. Extrapolating trends from historical data is another.

Although financial modelling cannot offer completely accurate forecasts, it is a big help in generating profit plans, risk analyses, capital budgeting, merger and acquisition schemes. A general purpose micro with a financial modelling package is an ideal tool for both the general business person and the accountant.

Paul Fisher



JOBS: Visicalc accounts for 25% of sales.

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SOFTWARE MONTH

There is a revival of interest in electronic mail, and everyone who makes a telex or fax machine wants a look-in

What you can expect from electronic mail

ELECTRONIC MAIL has been around longer than most people think, with the first packages appearing in the US as long as 10 years ago. Because its benefits – as with much office system software – tend to be intangible, electronic mail was used mostly as an interesting frill on existing large-scale in-house computer systems.

Growth of the market for cheap micros and intelligent terminals, together with the appearance of the packet switched data service and relaxation of British Telecom controls, has lead to a belated revival of interest in electronic mail. In fact everyone who makes a telex or a fax machine is announcing that they can supply electronic mail facilities.

Strictly speaking electronic mail is a computer-based system for sending letters, memos and documents between people. It should let you edit, send, receive and file messages without using paper, although many systems provide printers. Electronic mail does not include old-style telex, fax, or automated post-room equipment.

The degree of integration which an electronic mail program can be expected to supply depends how it is to be applied. For example, an international organisation with lots of peripatetic managers who need to receive simple messages from their head offices, would not need an electronic mail system integrated with its main data files or software suites. The problem could be solved with a simple word processing and message handling package.

But an organisation using electronic mail as the main means of communication within the company would rightly expect it to interface with the database, word processing programs and existing communications system.

For sending simple memos around the UK or Europe the best option is probably a bureau service. The Comet network from BL Systems is suitable for widely spread organisations within the UK, while British Telecom's new Dialcom service also provides international and inter-company communications. Because of PTT regulations, this is technically the only way to send electronic mail between companies at the moment, although two independent users of a commercial bureau mail service could probably send each other messages.

Electronic mail is a computer-based system for sending letters, memos and documents between people.

The arrival of teletex this autumn is likely to change all this with a new high-speed telex service between word processors and computers and a completely open public network available to all.

In-house electronic mail is usually a lot more complicated and can sometimes provide the basis of the computer system. The Scrapbook system from Triad includes complete database management and WP facilities, which could meet most of the computing needs of the information-based company.

Martyn Harris

Big news for everyone selling computer products and services to the Middle East

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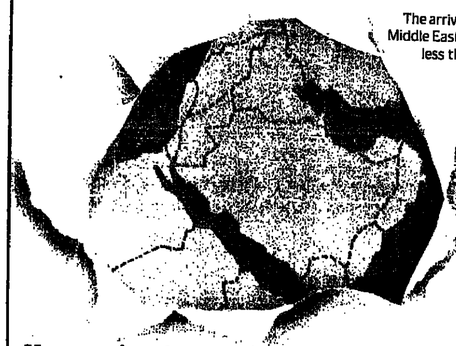

The arrival of IPC's unique new publication, Middle East Computing, means nothing less than that.

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How we've done it

Middle East Computing began as a single-issue publication, backing the Gulf Computer Exhibition and Conference at Dubai last December. Its enormous success revealed such an urgent and widespread demand for computer product information that it is being published regularly and is the official journal of this year's Gulf Computer Exhibition.

6000 copies are sent to established computer users or key personnel within government and major business organisations, in the Middle East countries predominant in the computer market. The circulation is updated through the full research resources of Computer Weekly and IPC Business Press backed by contacts made at the Gulf Computer Exhibition.

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Choosing the right software for your word processor

IF ALL you want to do is word processing, buy a purpose-built word processor. It will handle anything from repetitive mail shots to originating attractively presented prose. The hardware will be wrapped around invisible software, some training will be thrown in, and the user need not be concerned about what goes on behind the screen. Dedicated word processors provide the user with an honourable and tested route to word processing happiness, as the success of their manufacturers shows.

But the user who wants the hardware to process data as well as words should consider a software package. There are over a hundred for running on microcomputers and another score for minicomputers.

There are hardware cut-off points below which no amount of clever software will make a cheap micro into an efficient word processor. The hardware should comprise at least 32K of main memory backed by twin floppy discs. Without sufficient central memory and additional disc storage, holding and moving large chunks of text are impossible. Upper case letters on a screen smaller than 24 lines of 80 characters will create major operational difficulties.

Most users will need a daisy-wheel printer, and as a rule of thumb this should not cost more than the rest of the hardware or a racehorse will be hauling a tumbril!

Having established a proper hardware balance, the prospective user of a simple word processing package should make certain that what is shown on the screen is consistent with what is printed out. The package should not require drastic keyboard layout changes to make its functions comprehensible.

Word Star is the most popular micro word processing package. It costs just under £500 and runs under the CP/M microcomputer operating system. This has become the standard operating system for micros, so it allows the user great freedom of choice when selecting the applications programs.

Close behind Word Star in popularity, and similarly priced are Magic Wand and Spell Binder, which also run under CP/M. Without making detailed comparisons, Spellbinder is probably the best for blending with other application packages, although, given the current state-of-the-art in office automation, word processing is better approached as a solution to a specific problem rather than as a key to total office automation.

There are two easy ways to expand a word processing system. First, the dedicated manufacturers, such as Data Recall and Wordplex, can easily stitch several systems together. Second, minicomputer-based systems can be installed.

Minis from Data General, Digital, IBM, ICL, Prime and Texas Instruments all accommodate word processing software packages costing upwards of £10,000. Minis are valuable as the bases of multi-user systems, and unlike micros do not suffer from problems associated with limited storage capacity. The micro user must work from floppy discs in a maximum central memory of 64K. This leaves little room for the more sophisticated word processing tasks. Sorting long files and rapid retrieval from big databases is beyond the capacity of most micro packages, while sharing text libraries is all but impossible.

Word 11 for Digital Equipment minis is a good example of a powerful word processing package. It is particularly effective for document assembly with 25 text registers for holding up to 20,000 characters in transit. Three key strokes insert text in a document from material stored on disc. It is suited to major tasks such as preparing manuals and reference books, but is too expensive for automating basic secretarial chores.

In summary word processing alone is best handled by a dedicated word processor, and future upgrades should be considered during the initial purchase. If the word processing demand does not justify a dedicated machine, the users should consider a package but make sure it is tailored to the upper and lower power limits of the micro it is to run on.

For processing power and the ability to handle a range of other business applications, a package to run on a minicomputer should be considered.

Paul Fisher

SOFTWARE MONTH

That 'DBMS' might not be quite what you had in mind

Ferris is a consultant in the UK and U.S providing marketing and planning advice to computer vendors, particularly in the area of software.

THE way words shift in meaning can be annoying. The latest casualty is DBMS. Depending on who you talk to, definition will vary.

Traditionally, DBMS referred to fairly complex data storage and retrieval mechanisms, such as IMS, DL/L, IDMS, Adabas, and Total. These are used by professional software development staff, and offer sophisticated ways of relating types of data that go beyond indexed flat file types of organisation such as ISAM, KSAM, or VSAM.

DBMS in this sense lends itself more naturally to the representation of charts of accounts, bills of material, students and classes, customers and invoices, or products and suppliers. The most common data structures used are hierarchical, network, inverted, or recently relational.

SOFTSELL

This kind of DBMS also offers other facilities needed by developers of integrated sets of commercial applications programs. Sometimes these are conceptually simple notions, such as the separation of data from programs so that changes can be made to the database without forcing software rewrites ("data independence").

Other facilities can be hard to grapple with, such as tools providing for shared environments in which users can interfere with each others' data (eg "lockout"); or tools providing for backup and recovery when the system behaves abnormally; or facilities to fine-tune DBMS performance.

Today, however, DBMS has come to be used in other contexts. This is partly because the notion has been generalised. But mischievous directors of marketing, who see the term plastered all over the industry Press and reckon they will stimulate greater interest by exercising poetic licence must share the blame.

So if you look at what are called DBMSs today, you will find all sorts of different things. Prices vary between about $250 and $250,000. Hardware varies from $3,000 micros to multi-million dollar mainframes. The people who use the packages range from accountants who know nothing about computer technology to software specialists who are paid $50,000 a year simply to tweak database performance.

The products fall in three categories, which can be termed "personal database systems", "application generators", and "traditional DBMS".

Personal database systems. These are products like Visifile, DBMaster, Focus and Ramis. They are simple, easy to use, and are suitable for non-technical, non-programmer types. Typically, the primary architectural features are:

- Definition of formatted data entry and retrieval screens by "painting" them directly on to the CRT;
- Single-user, single-file, multi-key ISAM (or B-tree) file organisation;
- Interactive data definition, sometimes inferred directly from a formatted screen definition;
- Only very simple data edit and validation criteria;
- Sometimes a report writer and ad hoc query system are included.

Application generators. These are more technical products used by programmers to develop DP software more quickly than they could using traditional approaches such as Cobol and Basic. The demand for this type of product is hot, and successful products can generate cash quickly. For example, Cincom claims it sold $20 million worth of its offering, Mantis, in its first year.

Other well-known examples of generators include UFO, Natural, ADF, DBase-II, and FMS-80. Frequently, they are oversold – vendors claim that they are suitable for end-user software development, or that they can be used to build programs of arbitrary complexity.

Primary characteristics are:

- Screen definition by direct painting or long-winded screen definition language compilation;
- Interactive data definition;
- Ability to define menu hierarchies to guide users through integrated applications and transactions;
- An embedded very high level language, similar in flavour to a report writer. These languages are usually unique to each generator, and are used to define fairly complex edit and validation criteria, and fairly complex record handling. Sometimes, the software developer is prompted for these instructions;
- Integrated report writer and ad hoc query systems.

Traditional DBMS. This class of product is much more common in the mainframe world than elsewhere. In the micro world, for example, MDBS is the only product of this kind to make its presence felt so far. Others will soon become available to micro users, including some real relational systems.

Nowadays, vendors of traditional DBMS sell their products with integrated development utilities, typically including a data dictionary, report writer, query system, screen definition package and – increasingly – an application generator.

Traditional DBMS has been around for about 15 years, and thousands of them have been sold. But now interest is turning to the newer personal database systems, and application generators. Given that the latter two are so much easier to use, will the traditional DBMSs be pushed into diuse?

This is an attractive view for many. Novice programmers playing on a micro use things like DBMaster or FMS-80, and then come across MBDS. Naturally, they are baffled by the complexity, and do not understand the reason for it. Then there is the Cobol programmer who has just started using an application generator and is overjoyed at how fast things get done compared to IDMS or IMS.

However, I think this is an incorrect view. I believe that the complexity and difficulty of use of the traditional approach is going to stay with us for a long while. It turns out that personal database systems and application generators simply are not adequate for building a lot of software that corporations need for DP purposes.

The difficulties lie in familiar problem areas, such as complex record manipulation, data integrity, access speed, and the specification of edit and validation criteria. At first, personal database systems and application generators seem like a panacea . . . but put too many demands on them, and they soon outgrow their limited capabilities.

The new, all-inclusive meaning of DBMS should not be allowed to cloud the important distinctions between these different kinds of products.

David Ferris

ROUND UP

UK firms set up in Eire

TWO leading UK companies have set up software operations in Eire with the help of grants from the Irish Development Authority. Distributive Computer Systems (DCS) is to set up a Dublin operation to develop existing products, and Computer Ancillaries (CAL) of Surrey is to set up a software development company there.

Apple pie

COLOUR graphics software with a high definition plotter for the Apple Computer has been released by leading Apple supplier Personal Computers. The graphics software, which generates bar and pie graphs, costs £75, and the plotter, which offers a choice of 10 colours and plots with two light pens simultaneously costs £969.

Cheaper links

A PACKAGE from MAP Computer Systems may undercut ICL's DRS 20 terminals by offering a cheaper link with ICL mainframes. Oldham-based MAP has developed an emulator for ICL's CO2 mainframe protocol that allows any microcomputer running the CP/M operating system to be linked with ICL's 1900 or 2900 machines.

Wang software

TWO critical gaps in software for Wang 2000 minicomputers have been filled by a financial planning package, and an extension for bought and sales ledgers that allows for more than one currency. Both these packages have been announced by Ealing-based systems house PMR, which already sells an integrated accounting package called TOM with which the new software can be linked.

CAP-ICL deal

SOFTWARE house CAP has signed an agreement to collaborate with ICL on several as yet unspecified projects. The agreement is part of the Trader Point scheme under which ICL hardware is sold with software from houses in the scheme.

Cobol standard

THE US Codasyl Cobol committee has at last agreed on specifications for a "Validate" verb in Cobol, which will eliminate tedious data checking in Cobol programs. The proposal first made seven years ago in the UK by the British Computer Society is now likely to be adopted by makers of Cobol compilers and should eventually become part of the Ansi standard.

Database Week

DATABASE Week, a series of informal tutorials including an assessment of relational databases by Dr Ted Codd of IBM, will be held in London in October by Pergamon Infotech.

Software patent

A SHOT in the arm has come for US software inventors with a Supreme Court decision to give a patent to a financial package called Valpert. This follows a 10-year campaign by US software developers to ensure that their inventiveness gets a fair reward and is not stolen and marketed by others under a different name.

Expert advice

A MANAGEMENT tutorial on expert systems will be held in London by the BCS in September. The aim is to convince senior managers that they must learn now about expert systems, or face being left behind by overseas rivals. The BCS is also holding a three-day technical conference at which several leading US expert systems people will speak.

If you are a supplier, distributor or support company with a major interest in selling, marketing or manufacturing computer peripheral equipment you should be at the . . .

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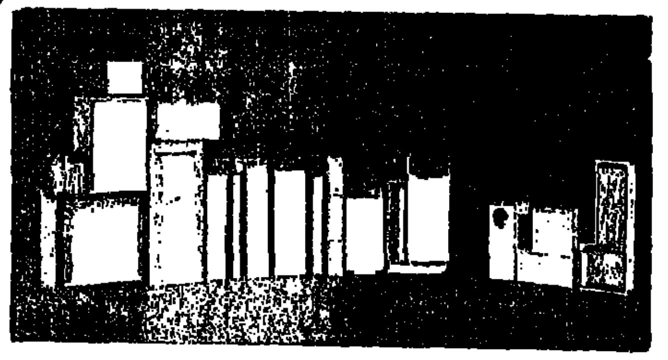

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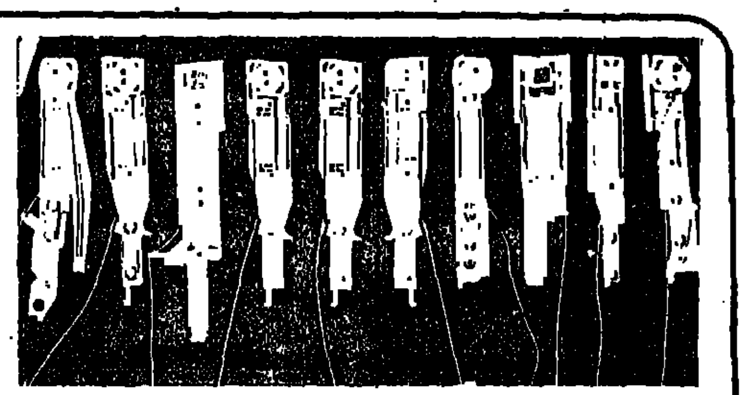

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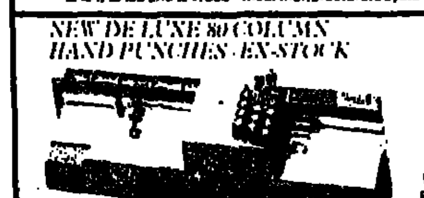

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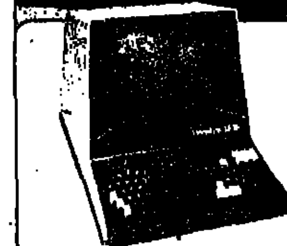

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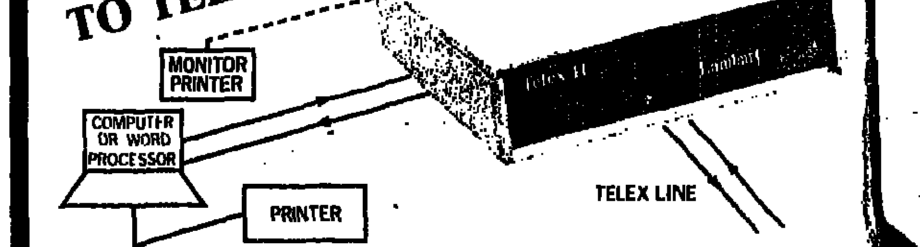

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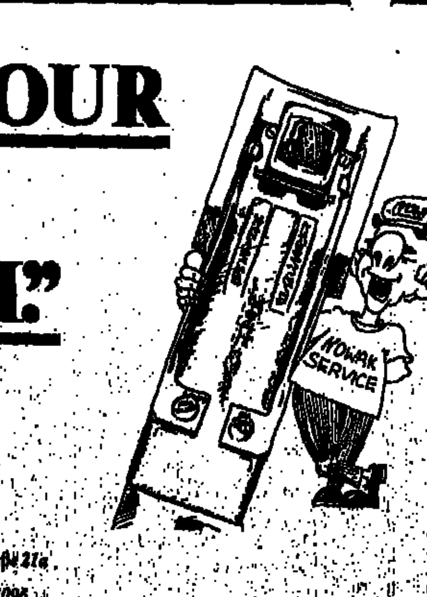

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Candidates should have degrees in numerate subject plus minimum of two years' relevant computer experience. Astronomical or operating systems background desirable.

The salary on the Computer Officer Scale £6550 – (£8370) – £11105, plus superannuation.

Further particulars from Assistant Registrar (Sci. and Eng.), P.O. Box 363, Birmingham B15 2TT, to whom applications (three copies) including full curriculum vitae and naming three referees should be sent by Monday, 6th September, 1982.

Please quote Ref. CWE1

(0582)

logitix Logitix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Process Control Software

E. Home Counties : Salaries to £11K

Systems Software Engineers, with between two and five years' software design experience gained in a distributed processing environment, are urgently sought by a major supplier of micro-based industrial control systems. All applicants should possess at least one degree, preferably, but not necessarily, in a numerate discipline and be fluent in an assembler and a high-level, block structured language such as "C" or Pascal. There is a strong preference for candidates with exposure to Z80 or T.I.9900 based systems although applications are also sought from those with hands-on experience of any leading MDS. All positions demand good verbal and written communications skills as there will, inevitably, be an element of customer contact during design studies and commissioning. Man-management experience is especially interesting to our clients who can guarantee rapid advancement into managerial positions for those of sufficiently high calibre. **Ref: L/32/A**

Business Systems Analysts

N.E. Surrey : Salaries to £15K + Car

A leading Systems House and Consultancy, which specialises in the supply of minicomputer-based business systems, is currently seeking additional Business Systems Analysts. Suitable applicants will probably be employed by a Systems and Software House or Consultancy where you are involved in the analysis, design and tailoring of accountancy or financial applications software for end users. In particular you should have experience of at least one minicomputer, preferably Wang, DEC PDP11 or IBM System 34. These positions will involve a degree of travel to client sites and consequently you will be provided with a company car. **Ref: L/32/B**

Telecomms Consultants

Greater London : Salaries to £17K

A highly regarded supplier of integrated Data and Telecommunications Systems wishes to recruit a number of Designers and Senior Consultants. Ideally, candidates should have had experience in the evaluation, selection and integration of PABX/LAN equipment or be currently employed as a Consultant with a Systems House or Product Vendor. All respondents must show previous experience of both man-management and budgetary control. Additionally you will be called upon to provide a total consultancy service from strategic studies, through to recommendations, on-site implementation and final acceptance. Good personal presentation skills are of paramount importance since you will be expected to project recommendations at senior management level. **Ref: L/32/C**

Firmware Programmers

Swindon : Salaries to £10K

A number of **Firmware/Software Programmers** are sought for this West Country Research and Development facility. All candidates must have at least an H.N.D. or B.Sc. qualification and, additionally, one year's software or firmware programming experience. Candidates should have a thorough knowledge of Micro-Assembler and in particular have recently designed an I/O driver as an interface to the system peripherals. For the more software related positions candidates should have designed a communications protocol. Whilst particular hardware experience is not all-important there is a stated preference for candidates who have worked in an environment where Z80/Z8000, Motorola 6800 or HP 9835 hardware is utilised. **Ref: L/32/D**

Comms S/W Designers

South Wales : Salaries to £11k

A world-leading supplier of telecommunications equipment has a number of requirements for Communications Software Designers to join its Research and Development facility. All candidates must possess at least one degree in Computing Science or Electrical/Electronic Engineering and have had two years, or more, in an industrial environment. Past responsibility for hardware implementation, as well as software design of low-level protocols up to, and including, Transport Service will be favoured. Applicants should, preferably, have hands-on experience with a leading MDS and be fluent in an Assembler and one or more high-level block structured languages. **Ref: L/32/E**

Micro S/W Development

Cambridge : Salaries to £12k

Programmers and Software Team Leaders are urgently requied to assist in the development of applications and systems software for a new generation of microcomputers. Successful candidates for the positions of Team Leader will be fluent in a high-level, block structured language and have specified and implemented at least one compiler. Working in-house, their responsibilities will include the design, development and commissioning of systems software and the evaluation of commercial packages submitted by sub-contractors. Programmers will also be expected to offer fluency in a block-structured language and, preferably, have gained the majority of their post-graduate experience on micro-based systems. High standards of documentation and the ability to conform to tight deadlines are required of all respondents who, in return, will be rewarded by highly competitive salaries and a dynamic working environment. **Ref L/32/F**

Senior Systems Designers

N. Home Counties : Salaries to £13K

A number of **Senior Systems Designers** are urgently required for the Advanced Systems Division of a well-established minicomputer manufacturer. At least one degree in a computer-related discipline followed by five years' direct involvement with systems software development, preferably gained with a leading software house, is essential. A major area of responsibility will be to provide design consultancy services across a wide number of projects and ensure that performance, functional and quality criteria are achieved. Therefore, good communications skills and high creative ability are very important; as is a software background encompassing compiler development, communications systems and block-structured languages. **Ref: L/32/G**

C + UNIX Designers

Greater London : Salaries to £11K

An internationally recognised supplier of Hardware and Software Systems plans to introduce a new product line based around the "C" programming language and running under UNIX. Suitable respondents should hold a numerate degree and be fluent in an Assembler language and at least one high level language, preferably C or Pascal. Of additional interest will be those who have current involvement in a systems development role on any leading 8- or 16-bit microprocessor. **Ref: L/32/H**

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ANALYST/PROGRAMMER — **C. LONDON** — **to £11,500**
C. London based company seeks an analyst/programmer with three-four years' COBOL including knowledge of HP systems and software, particularly IMAGE database. Applicants should have good all round experience with exposure to systems design and specification. The company is soon to upgrade its hardware, presenting the successful candidate with excellent career prospects.

SENIOR ANALYST/PROG — **HOME COUNTIES** — **to £12,000**
Installation based West of London with a heavy commitment to DP requires a senior analyst/programmer to join their expanding department. Applicants should have around four years' experience gained preferably on HP equipment although other manufacturers would be considered, especially if on line and database techniques have been deployed. Excellent career prospects are offered along with large company benefits.

ANALYST/PROGRAMMER — **C. LONDON** — **c £9,000**
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JUNIOR PROGRAMMER — **LONDON** — **c £8,000**
Three Central London companies currently require junior programmers with a minimum of 12 months' HP COBOL experience. The companies concerned are involved in a variety of commercial applications and offer good prospects and benefit packages.

This is just a small selection of current requirements: for details of these and others not advertised call us now.

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S/S/A
City — c£13.5K
To lead a project — 6 or 7 staff. Financial and management information systems. COBOL background with knowledge of Database BUT training given on IDMS & CICS. (SJ 3686)

FORTRAN
Middx — to £15K
If you are seeking a challenge, then look no further than joining this new team and enjoy customer liaison, new software, and a salary to fit your skills. A degree would be an advantage as would a sense of humour! (JA 3406)

RPG II/III
Herts — to £12¼K
International manufacturer undertaking total re-write and change-over to S.38 offers full training to experienced S.34 Analyst/Programmers and Analysts. Real progression possible in this dynamic environment. (GT 3462)

S'WARE ENG
W. Country — to £12K
Highly qualified Cobol, Assembler, Master prog for MOD software research projects. Generous relocation package, rural environment. (SJ 3634)

SNR ANAL/PROG
Middx — £10K+Car
Take total responsibility for the implementation of this International Company's production system employing your 3 yrs RSTS/BASIC+ skills. First line and functional management position. (JA 3601)

HP 3000
Berks — to £12.5K
Analyst/Programmer and Senior Analyst Programmer required to join this well-established company in their Berkshire H.Q. Exciting development work for dynamic people with strong COBOL background preferably Hewlett Packard. (HR 3469)

SWITZERLAND
R/T — to £20K
R/T progs with ability to write in GERMAN, prefer with TELEPHONY background, for long term QUALITY ASSURANCE, INTEGRATION & TESTING project. (SJ 3687)

CICS + DL/I
Surrey — £15K
5 years' CICS & DL/I design experience, required for unique opportunity as technical consultant, advising on corporate database design, CICS installation development, new systems development and IBM system software evaluation. (RD 3418)

H/WELL SNR. PROG
Middx — £10.5K
Ready for the next step? Your 3 yrs' COBOL can offer you the opportunity to get totally involved in small project teams, from design to implementation. Good company benefits and a friendly team all add to excellent working conditions. (JA 3638)

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Surrey — £13K
You are a Senior Analyst/Programmer and could contribute to the conversion from S.34 to S.38 and further development of systems, then this International based company will offer you security and individual recognition. (RD 3366)

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SYSTEMS SALES MANAGER (DESIGNATE)

The successful candidate will be able to demonstrate a proven track record in computer System Sales, incorporating Commercial, Communications or Graphics application. He or she will be capable of controlling the Sales activity involved in developing new Systems Business.

A remuneration package will be £25-£30,000 p.a. plus Company Car etc.

LOCATION: Our Headquarters at Maidenhead, Berkshire.

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LOCATION: Our Systems Engineering facility at Bourne End, Nr. Maidenhead, Berkshire.

The Company provides excellent working conditions and all usual benefits associated with a company of our standing.

FOR FURTHER INFORMATION REGARDING THE ABOVE POSITIONS, TELEPHONE OR WRITE TO:

THE SALES AND MARKETING MANAGER
LAMBART COMPUTING

(0558)

Lambart
Lambart Computing
52 Montague Road, Maidenhead, Berks, SL6 4HS
Telephone: Maidenhead (0628) 72027/29 Telex: 847811

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LAMBART COMPUTING

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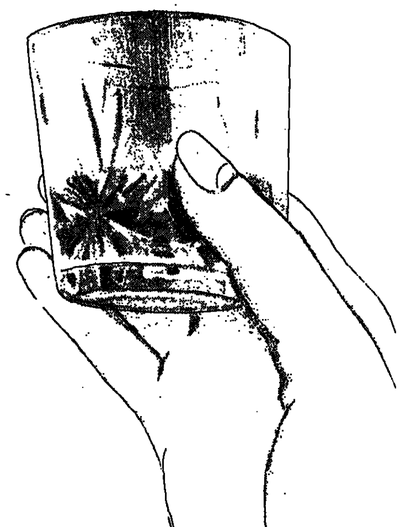

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HONEYWELL DPS8 COBOL PROGS
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ICL VMEB, IDMS
ICL SYSTEM 10 ASSEMBLER
ICL SYSTEM 25 ASSEMBLER
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PDP RSX11M BASIC + 2
VAX BASIC
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HP3000 COBOL
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SNR Prog/Anal – Instal CME to run DME MAN/EXEC with DP System VMEB required – immediate start – 3 month + assignment

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Analysts Various Systems
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Any commercial experience, various locations, including Surrey, Middlesex, Berks.
Excellent salaries plus relocation.

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URGENT

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Dear Contractor,

REF: HPSL'S FIRST-EVER SPECIAL RAFFLE

The glad tidings of our proposed raffle, for a micro computer, appears to have travelled far and wide. A number of anxious would-be participants have contacted us to say that they have not received the details of entry to the competition. We can only assume that the recent happenings on the railway, or perhaps the postal services, have conspired against us in this matter.

If you did not receive an original letter of invitation and wish to be included in the draw, please forward your CV at once marked "Micro Computer Draw" or contact the office for an abbreviated form and then:

HURRY THE COMPLETED FORM TO US FREEPOST

In order to give all interested entrants to the raffle a fair chance, we have agreed to hold over the draw of the lucky winner until September.

The winner's name will be announced in all our press advertisements in that month.

Contact with the winner will, of course, be made by telephone or telegram immediately the draw has taken place.

For your information, the micro computer chosen for our draw is the VIC-20 Colour Computer – a very handsome prize you'll agree – so rush your curriculum vitae to us.

FREEPOST HASTE

Good Luck

Yours sincerely
H. PROGRAMMING AND SYSTEMS LTD.
JAMES T. BARKER

PS: Please tell your colleagues about our draw because your name can be entered for the draw for more than once by getting any of your colleagues who are not already registered with us to do so. Any new names will also qualify for the raffle together with the name of the individual who introduced them. No restrictions are placed on the number you can recommend.

PPS: Please make sure you include your name, address and telephone number on your form.

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(0529)

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For Northern opportunities call Barry Hadfield on 061-833 0427 or 061-338 3319 (evenings until 9 pm). For Southern opportunities call Chris Whetherly on 01-935 0671 or 0252 874195 (evenings until 9 pm). If you are overseas or unable to telephone, please submit a curriculum vitae to our London or Manchester address.

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COMPUTER SYSTEMS ENGINEER

BBC Engineering Division are looking for an experienced Systems Designer to work in their Studio Capital Projects Department.

The Post involves the analysis, design and implementation of software controlled systems for broadcast applications which include the routing of Audio and Video signals, Digital Signal Manipulation and Teletext generation.

The postholder would manage substantial projects which had contributions from engineers within Studio Capital Projects Department, from other specialist departments and manufacturing industry.

Projects may be undertaken for any of the BBC output Directorates and considerable liaison with both manufacturers and broadcasting personnel is required. Candidates must have at least four years' experience in the analysis, design and implementation of mini-computer systems and preferably be a graduate professionally qualified in engineering or computer science. Previous experience of either broadcasting and/or DEC or other mini-computer equipment would be an asset. Candidates male or female, must be capable of clear expression both verbally and in writing and must be self motivating. They should preferably be conversant with financial and project planning methods and techniques.

Salary £10,785 – £13,184 pa according to qualifications and experience. Base will be in London but candidates must be prepared to work away from base at sites throughout the United Kingdom.

Application forms may be obtained from **BBC Engineering Recruitment Officer, Room 344, 33 Cavendish Square, London W1A 1AA**, quoting reference number 82.E.4054/CW.

For further information, telephone **Paul Jarrett, Head of Computer Systems Unit, SCPD on 01-740 9440.**

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BBC

(0536)

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(0538)

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(0530)

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(0542)

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(0631)

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(Data-processing Officer)

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This post is open to male and female applicants who must meet the following requirements: ● university degree or equivalent professional experience ● professional experience of analysis and programming in several languages, including assembly language, and in a number of areas including the development of administrative and documentary data bases and the installation of a terminal network ● knowledge of the potential of teleprocessing operating systems, preferably those of more than one computer manufacturer ● knowledge of software for the four sectors indicated above ● thorough knowledge of one of the official languages of the European Community (Danish, German, Greek, English, French, Italian, Dutch) and a very good knowledge of a second ● be a national of one of the Member States of the European Community ● be no more than 33 years of age (born after 30 September 1948).

Place of work: LUXEMBOURG. Closing date for applications: 30 September 1982.

Full details and an application form are contained in the Official Journal of the European Communities, which may be obtained by writing quoting reference "Data-processing Officer", to: ☐ The Information Office of the European Parliament, 2, Queen Anne's Gate - GB LONDON SW1H 9AA ☐ or directly to the Recruitment Section of the European Parliament, P.O. Box 1601, LUXEMBOURG

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(0563)

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Applications are invited for a Research Fellowship in the Department of Environmental Studies and Countryside Planning to carry out a feasibility study for a computer-based rural information system under the direction of Dr. A.W. Rogers. The project is funded by the Development Commission and is for one year commencing 1 November 1982 or as soon as possible thereafter. The post will be on the Research and Analogous Staff Scale 1A, at a point considerably higher than the minimum.

Applicants should have a wide knowledge of information systems and related computer applications. A postgraduate qualification is desirable and some research experience would be an advantage. Applications citing relevant experience and two referees should be made by 10th September, 1982 to the Secretary, Wye College, Wye, Ashford, Kent TN25 5AH, from whom further particulars may be obtained.

(0621)

UNIVERSITY OF LIVERPOOL
Department of Computer Science

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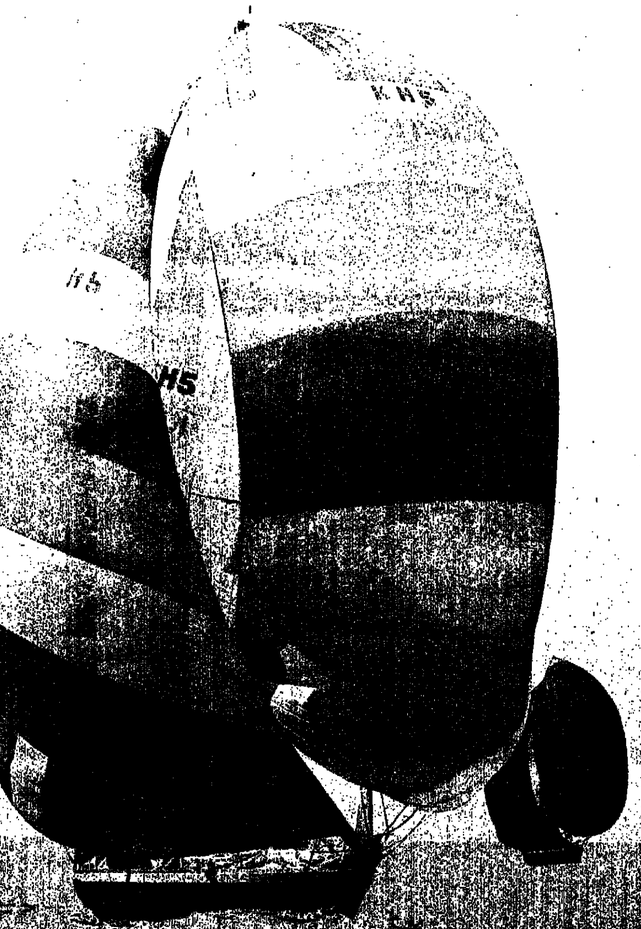

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OS/MVS	ANAL/PROG	CICS, IMS	PL1 OR COBOL
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SYS 38	PROG		RPG III
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VMS	PROG		BASIC OR COBOL
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ICL

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An application form and further particulars may be obtained from the Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland, SR2 7EE or telephone Sunderland 76231, Ext 11. Closing date 25 August, 1982.

(0520)

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TASK FORCE (0567)

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We now realise we need further computer expertise to make the best use of our equipment, make existing systems work more efficiently and develop systems for the future; on line reservations will be one major development which although part of the reservations package has not yet been implemented.

Duties will be mainly based in London although the successful candidate will also have responsibility for ensuring that the system in our Midlands office (where the Reservations package operates on an independent system 34 machine) are co-ordinated with London.

Initially the job will involve considerable time in improving administrative systems including document flow, form design and input/output controls. The successful applicant will have had good computer operations experience ideally on IBM System 34; he/she will also be an ambitious individual ready to develop with this expanding company. In addition an accounting/financial background would also be useful.

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(0476)

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DALGETY SPILLERS

JOB OPPORTUNITIES IN IRELAND

The government wants to ensure that foreign firms do not leave when incentives expire, says Tom McSweeney

How Eire is coming to grips with an industrial revolution

THE rapid development of the computer industry caught Ireland unprepared, but the country has quickly come to grips with what amounts to an industrial revolution.

Caught in the throes of a severe economic depression, the Irish Republic is also swaying to and fro in the dispute over its future in computers and whether the studies of American experts reveal a shaky base or the Industrial Development Authority is correct in thinking that there is a good foundation on which to build.

The government has involved itself by instructing the IDA to ensure that companies setting up in Ireland bring research and development with them. This is to make sure that they will remain in the country, and not depart once the tax incentives that got them there and the state grants expire.

There are two specific areas of recruitment in the Irish computer industry at present – manufacturing and assembly, and computer users.

On the sidelines the trade unions are periodically expressing concern about the effect on traditional jobs of rapid computer development.

There is still a lack of good basic research on the industry in Ireland, and rapid development has also led to less-than-perfect communication.

Both the industry itself and state bodies like the Manpower Consultative Committee of the Department of Labour are tackling the questions of recruitment, job availability and job skills needed at present. But there is a recognised need for improved contacts between the industry and the variety of agencies such as universities, technical colleges, the Institute of Industrial Research and Standards and the National Board for Science and Technology.

In most cases simple manufacturing, test and packaging activities have dominated the computer manufacturers who first set up in Southern Ireland, but this situation is changing. However, too few are integrated right through from research and development to manufacturing and marketing to please the Irish government yet.

The Industrial Development Authority has been keeping a close watch on the type of jobs in manufacturing industry and recently announced a package of seven new software companies, six to be located in Dublin and one in County Kilkenny.

They will provide 361 jobs in total, but as with many of these firms the full commitment will be over a period up to five years.

In this group Tubetec Kilkenny, established by the Jones Group to develop existing and new products in microcomputer software packages with applications in heating and airconditioning, promises 30 jobs.

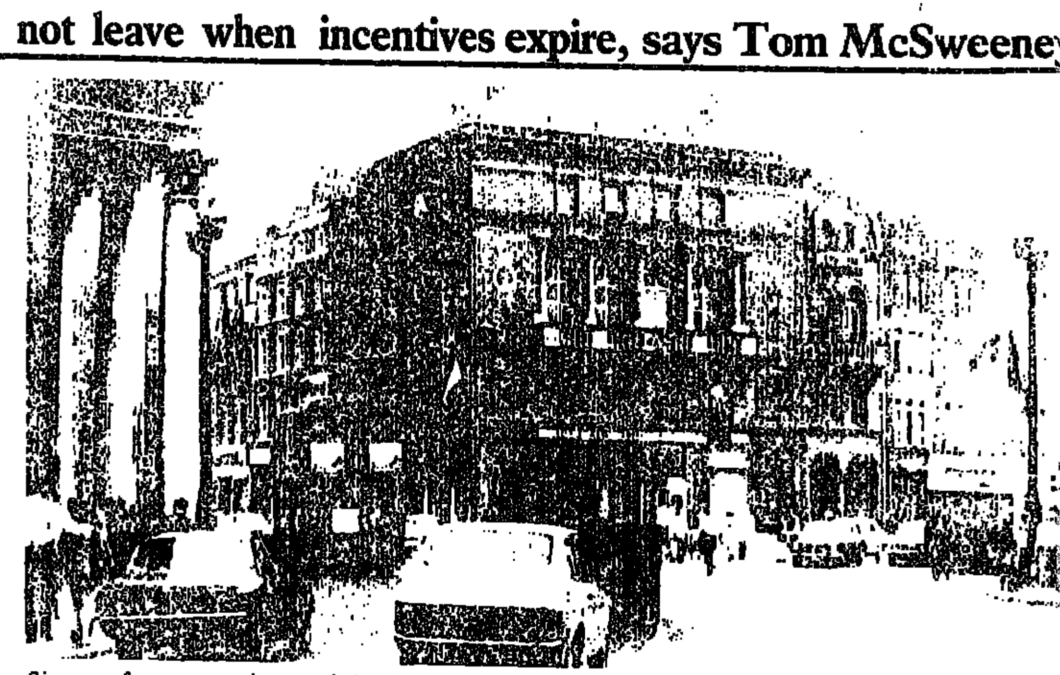
Real Time Software Overseas is a venture of RTS Ltd of Dublin for its general ledger and other accounting software programs, and will specialise in developing new software packages based on the IBM System 38. It promises 18 jobs over two years.

Distributive Computer Systems of the UK has decided to develop existing products for the UK parent, and to research new ones in Ireland.

The main product, Dealerman, a total package for car dealers, will be supported in the export market by the Dublin operation and promises 24 jobs, in the main for computer programmers.

Computer Ancillaries of Surrey has set up CAL (Ireland) to develop software and provide engineering and marketing support for the CAL range of microcomputers, with 22 jobs promised in this area. Rath and Strong Systems intends to set up a software consultancy in Dublin employing 46 people, while Informatics Inc has promised the IDA a total of 189 jobs.

These jobs are usually offered by Press advertising and the industry media. The National Manpower Service of the Department of Labour, as well as Anco, the national training authority, try to place people in them.



Six new software companies are to be located in Dublin.

There is no doubt that the universities and regional technical colleges are well geared to turning out the type of technical people needed, and many of the companies insist on training their own assemblers, or setting up programmes with the training authority, Anco.

This, for example, has happened in Cork, where across the road from Liebert Inc of Ohio (which will produce power systems and air conditioning units for computer rooms) Anco has established a special training course.

But while the assembly and manufacturing side is fairly straightforward in its requirements and the gearing of the training insitutions for it, there is a greater problem where the users are concerned.

The paradox is that there appears to be always a shortage of computer staff, yet trained staff are looking for jobs.

As the Irish industry developed, people tended to train on the job, and that has been the pattern as the industry moved into rapid development over the past ten years. Those people are now experienced and in demand, while those coming out of the colleges now have all the learned skills, plus some on-the-job training experience, but not the actual practical experience which the employers want.

In addition, the recession has forced many employers to stop hiring, so jobs are not now as plentiful as they were. Still, a systems analyst can command up to £14,000IR in jobs currently advertised in Ireland, and a programmer from £9,000IR to £12,000IR as a senior programmer, while a project leader can get around £15,000IR for his skills.

The cry from the heart often comes, however, from people who have spent some years studying. A National Certificate holder from one of the regional colleges recently described how they found themselves in a Catch-22 situation: To get a job they needed experience, but most employers wanted at least two years' experience before they would employ anyone, so trainees with college qualifications were being shut out of jobs as new graduates.

All the same, this is a time of recession in Ireland and computer staff are doing better than other sectors in finding work. But there is still need for more communication between the training centres and employers/users.

Overall, the use of computers is rapidly increasing. The Irish Computer Society sees this situation continuing into the future and points to the fact that in recent times, computers have entered professional offices as never before.

Many of the professionals seem particularly interested in minis and micros, so whether they will add employment opportunities for computer staffs is questionable, as the emphasis so far seems to be on existing staff being retrained.

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Northern Bank (0567)

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Applicants should have a detailed knowledge and experience of ICL's 2900 Operative System, SCL, Super-Structure Products and Hardware.

ETE operates two ICL 2956 computers. The operating systems are DME2, VME 2900 and CME. RTE also uses IDMS and IDMSX, with ICL's Data Dictionary System. Workloads are both Batch and On-line, with programme development under MAC.

The post is a permanent one, with a salary in the range:

IR pound 10,262 to IR pound 14,521 per annum.

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(from 15th September 1982).

Postcards, requesting application forms, should be sent to:

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RADIO TELEFIS EIREANN
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Closing date for receipt of completed application forms – Friday, 20th August, 1982.

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RECRUITMENT FEATURE

To coincide with Compec Scotland '82 the September 2 issue of Computer Weekly will contain a special recruitment feature concerning the job market in Scotland.

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Our client is one of Europe's leading software consultancies with an enviable record for technical excellence and professionalism which has been built up over a number of years. The company has completed projects in many areas including commercial data processing, scientific work, process control and systems software. Our client has recently won several prestigeous long-term systems assignments which require additional personnel at all levels throughout the company.

Lorien Computer Services Limited is pleased to be able to assist the company to meet its current staffing requirements. We believe that the positions now on offer are amongst the most professional in the data processing industry offering long term security, technical innovation and above average salaries in a progressive environment.

Applications are invited from experienced data processing personnel who wish to follow a career with a European software house.

The Project

The project, based in the City of London, relates to the development of a world-wide commercial real-time transaction processing system using database techniques. The hardware will be a network of both large and medium sized ICL 2900 and ME29 series using IDMS and experience of this hardware/software in a financial environment would be an advantage.

The company gives extensive technical training as necessary, in particular for work on other projects where new hardware and software techniques may be used. The company also offers the benefit of some European travel as project needs arise in European offices.

PROJECT LEADERS — **c £14,500**

You will have full technical responsibility for the work of your team, including the detailed analysis of user requirements through to software development. You will have a good knowledge of commercial systems, particularly REAL-TIME transaction processing, and have proven ability in the user area. You will have proven project leading experience beyond programming and will now be looking for a greater challenge than your present position offers.

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You will initially work with a project leader on the functional specification, to be followed by design work and the supervision of a programming team. You will have extensive analysis experience, including work on real-time systems and any exposure to structured methodologies would be an advantage. In all, you will be a data processing professional with the ability and desire to progress further.

ANALYST/DESIGNERS — **to £11,000**

Initially you will work in a fact finding role. Subsequently you will use your significant COBOL programming background in a design role and later work closely with the programming team. You should have extensive ICL experience, preferably including real-time systems design and your knowledge may include structured methodologies and data analysis. In particular your experience should include ME29 or 2900, TME, TP or TPMS or IDMS

For all these positions contact **LEN CRAY** at our London Office on 01-439-8985 during office hours or ring **HARVEY KAYE** at home on 01-958-4954 during evenings and weekends. Alternatively send your C.V. to the address below

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✻B6800 & 6900	Programmer	COBOL
✻HP3000	Programmer	COBOL
✻DATA GENERAL	Programmer	AOS, INFOS 2, COBOL

We are also interested in hearing from people with either IMS/COBOL, CICS/COBOL, DL/I, PL/I, MARK IV, or ASSEMBLER.

If you are on contract or are seriously considering taking up contract work, don't delay, forward a C.V. or contact Jackie Robbins today.

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Lead programmer to £9500. An ambitious COBOL programmer with team leading qualities who would like, eventually, to be involved in Systems Analysis. Large scale IBM installation experience is necessary.

Programmer to £8500. Around 18 months CICS COBOL experience will qualify you for an opportunity where career development is assured.

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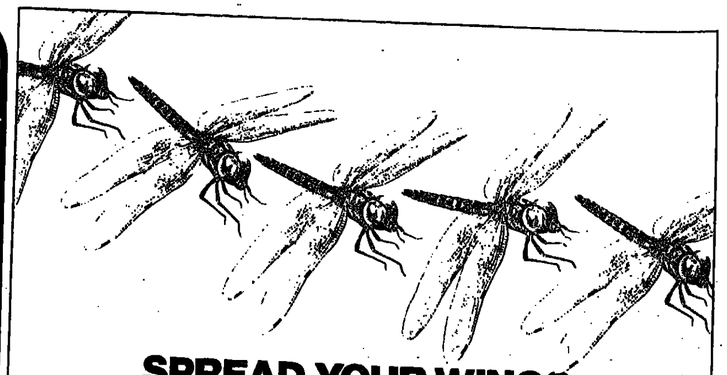

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Providing services to today's DP marketplace is not easy, particularly when the services that you provide are based exclusively on people. To succeed, a company has to apply an intelligent approach to its business, keep developing and using the best and most up-to-date techniques available, and never sit back on its laurels.

The company must provide the working environment, and full support, for each team member to achieve their own goals.

For an individual to succeed at RJB requires a thorough knowledge of the marketplace in which we operate – computer manpower – from a DP, management consultancy, personnel, or recruitment standpoint. Such experience will get you an interview. To get the job, you will have to demonstrate a complete dedication to professionalism, a capacity for lateral thought, outstanding interpersonal skills and the attitude that given the right environment, you really will spread your wings.

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Written applications with full c.v. to:

Mr. Ali Kashada
A.R.C. U.K. Representative
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42/50 Victoria Street
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Contractors
The direct alternative

CONTRACTORS

The National Computer Contract Directory is a method of putting contractors and computer users in touch without either side having to resort to intermediate agencies. The potential savings made possible, to both sides, are substantial.

The following table is compiled from a survey conducted among one hundred contractors who were working on behalf of clients to whom they had been introduced by an agency. It shows clearly the distribution of payment for the various categories of contractors.

These agencies added an average of 39% (i.e. £6,836) on top of your earnings. Is that a fair reflection of the services they provide?

Category	Average Weekly Pay	Average Charge	Agency Margin	Agency Commission On Pay
Programmer	£319	£445	£126	40%
Senior Programmer Analyst Programmer	£371	£509	£138	37%
Chief Programmer Senior Analyst Programmer	£400	£509	£169	42%
Systems Analyst	£428	£570	£142	33%
Systems Programmer	£672	£780	£238	44%
Consultant/ Project Mgr	£825	£870	£246	30%

Because the first three categories accounted for over 70% of the sample, the weighted annual average is as follows

Annual Pay	Annual Charge	Margin	Commission on Pay
£18,040	£24,876	£6,836	39%

THE DIRECT ALTERNATIVE

For those contracting companies and clients, who make contact and negotiate directly, this margin is available for redistribution in the form of:-

- Increased earnings for the contractor, or
- Reduced costs for the client.

Purely as a guideline, we have published the following 'pay indicator' based on a 50/50 allocation of margin:-

Category	WEEKLY RATE	47 WEEKS
Programmer	£382	£17,954
Senior Programmer Analyst Programmer	£440	£20,680
Chief Programmer Sen. An. Prog.	£484	£22,748
Systems Analyst	£499	£23,453
Systems programmer	£691	£32,477
Consultant/ Project Manager	£747	£35,109

AGENCIES

The ideal agency, would know of every contract and every contractor. However, few if any, contractors are registered with every agency. In order to access a realistic proportion of skills, the client must be in contact with a large number of agencies.

This means that the contractor must miss many opportunities.

Assuming an opportunity does occur, the contractor's interests are seldom of primary importance. The rate the client can afford and the commission the company is seeking are the central issues. Often, if the agency charges are too high the client will not use the contractor, so depriving him of work and income.

Contracts through The National Computer Contract Directory should earn you between £2,950 and £11,500 extra annually.

DIRECTORY SUBSCRIBERS

The National Computer Contract Directory is available to every direct user of contract services. It will contain a wide choice to allow an exact match — no more compromises. To locate contractors you simply phone and our on-line enquiry system will provide exact matches.

Name:

Position:

Company:

Address:

Tel:

SEND TO: THE NATIONAL COMPUTER CONTRACT DIRECTORY FREEPOST LONDON W2 2BR

THE DIRECTORY

The ideal situation is to make details of all contractors available to every major computer user. The National Computer Contract Directory is a practical system which achieves this purpose.

All entries will conform to a simple but comprehensive format which facilitates "at a glance" comparison and subscribers will be directed to entries which are appropriate to their requirement by the Directory's data centre which is designed to provide rapid response to the most exacting criteria.

The directory will be updated on a daily basis and subscribers will be able to access pre and post publication data which will be forwarded in hard copy within 24 hours.

WHAT YOU GAIN

- By releasing more income to your business you are assured of the increased profits and cash flow necessary to expand.
- This entry remains permanently in the directory – free of any charge!

WHAT DO YOU HAVE TO LOSE? ...it's free

DIRECTORY ENTRY DETAILS

IN CASES OF CONTRACTORS EMPLOYING MORE THAN ONE SPECIALIST WORKER, A SEPARATE FORM MUST BE COMPLETED FOR EVERY SUCH WORKER. IF THIS APPLIES TO YOU, EITHER (a) PHOTOSTAT THIS FORM OR (b) INDICATE, IN THIS BOX, HOW MANY ADDITIONAL FORMS YOU REQUIRE.

NAME: –

ADDRESS

TEL. NO.:

NO OF YRS IN DATA PROCESSING:

PREFERRED UK WORK LOCATIONS:

WILL YOU CONSIDER WORKING ABROAD?

JOB CATEGORIES

CATEGORY	NO OF YRS	CATEGORY PREFERRED
PROGRAMMER		
ANALYST		
ANALYST PROGRAMMER		
SYSTEMS PROGRAMMER		
CONSULTANT/PROJECT MANAGER		
OTHER – SPECIFY		

HARDWARE EXPERIENCE (MACHINES)	MONTHS

PROGRAMMING LANGUAGES E.G. APL FORTAN ETC	MONTHS

APPLICATIONS SOFTWARE E.G. CICS TOTAL ETC	MONTHS

SYSTEMS SOFTWARE E.G. DOS, MVS, ETC	MONTHS

APPLICATIONS E.G. PAYROLL, ORDER ENTRY ETC	MONTHS

ENVIRONMENT E.G. BANKING, MANUFACTURING ETC	MONTHS

FURTHER INFORMATION: (NOT MORE THAN 50 WORDS) PROGRAMMERS ARE ADVISED TO DESCRIBE THE DEPTH OF THEIR PROGRAMMING EXPERIENCE AND ANALYSTS SHOULD LIST THOSE AREAS OF SYSTEMS ANALYSIS IN WHICH THEY ARE EXPERIENCED I.E. FEASIBILITY STUDIES, SYSTEM DESIGN, PROJECT RESPONSIBILITY, USER INVOLVEMENT, MANAGEMENT EXPERIENCE ETC. IN ADDITION YOU SHOULD MENTION ANY SPECIALIST EXPERIENCE YOU FEEL IS RELEVANT TO THE CURRENT MARKETPLACE.

IMMEDIATE CONTRACTS for PROGRAMMERS

ANALYST PROGRAMMER BROMLEY IBM4300 APL

PROGRAMMER LONDON IBM COBOL or PL1 IMS DB/DC

ANALYST PROGRAMMER LONDON IBM Sys. 34 RPGII

ANALYST PROGRAMMER BROMLEY DEC DIBOL RSTS

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For further details contact: Nic Poland
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SALES BIT

Quality of Management–22

Grow your own strategy pays in the long run

ONE important discipline for any sales manager is the process of continual recruitment. The evaluation of prospective salesman should not cease when a full complement has been achieved. When you are running with a complete team, then is the time to be selective and maintain a continuing search for really good people.

Let's face it, some of your team are not going to make it this year; others may decide to take their talents elsewhere. This kind of unavoidable attrition must be taken into account. It is so much better to have the names of a few good candidates on file who have already been evaluated as suitable material and can be called upon at short notice. This can drastically reduce the enormous cost of carrying an unmanned territory.

Not often do you find IBM coming into the market for salespeople, if at all. The reason is simple – it grows its own, and appears to be surviving pretty well in the process. Firms such as Burroughs, Kalamazoo and British Olivetti have a similar policy. It is no coincidence that these companies have an excellent reputation for the quality of their sales training.

Trainee schemes cost a lot of money in the short-term and it takes a long time to get a continuing sales trainee scheme together. However, there are alternatives for smaller scale, lower-cost projects.

Take for instance the recruitment/trainee scheme that my company designed for Control Data a few years ago. The services side of the company, like many of its competitors, was having considerable trouble in locating experienced sales personnel of acceptable calibre for both its technical and commercial service bureaux.

From the selection point of view we divided the range of desirable experience into three elements:- proven selling skills, direct applications, knowledge and experience of computer usage. These were rated at 45%, 35% and 20% respectively, and as a broad guideline we were only interested with applicants who had a greater than 50% qualification.

The new recruits were deliberately chosen from applicants outside the computer industry, which not only gave a high response to Press advertising but also generated many high calibre people who saw getting into the computer industry as a major career opportunity. They approached the situation with an enthusiasm and open-mindedness that was most refreshing in comparison with the typical attitude of many salespeople within computing who have become complacent through the relative security of the world's most successful industry.

The basic training period was set at six months and was broken down as follows:-

Induction training (four weeks): The company, the full product range, computer appreciation, basic selling skills.

"Bag carrying" (four weeks): Working on territory with a number of established senior sales people.

Basic training (four weeks): The specific product area within which the recruit will operate, the specific applications area(s) within which the recruit will operate, advanced selling skills.

Territory work: Prospecting and new account selling within the salesperson's intended sales territory but minus any existing accounts.

Assessment: Counselling and appraisal leading to firm decison on the part of the local sales manager as to whether the recruit is actually going to make it.

Sales school: A single sales project from prospecting to final close, lasting for five days and virtually 24 hours a day.

This course needed a minimum of eight students to make it financially viable, so clearly it is not the kind of scheme a small company would consider. But it was successful for Control Data.

Clearly, whatever the size of company operation, it is necessary to have a budget for such expenditure and sometimes it is difficult to persuade people at the top of the company that this kind of expenditure is justifiable.

Accountants are not renowned for their vision and foresight, but they usually appreciate a good investment when it is presented to them in the right way – and that's what growing new people really is. Don't be persuaded that investing in new people is an unnecessary cost; just talk about the cost of having an unmanned territory instead.

Even if you are a small company and cannot justify the kind of training scheme I have described, that doesn't prevent you from pursuing a "grow your own" strategy on a small scale. Why not start with one? You may not even have to go outside for raw material as there are usually some selling aspirants around the place – sales support people, engineers, customers and so on.

Product training must surely be available within your own organisation and selling training can for the greater part be achieved by a period of well conceived "bag carrying" and one or two external courses. It is worth the effort.

Just think how nice it would be, and how practical, to have someone "on tap" when suddenly there is a sales vacancy.

Well, that's the last on the subject of recruitment and related topics. I'm off on summer hols just as soon as I complete my book. So hopefully, I will be back with you in a month's time.

Good selling!

Alan Williams

PUZZLE ANSWER

THE only other form of the equation is $2 \times 14 \times 307 = 8,596$.